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Settler Ecologies and the Future of Biodiversity: Insights from Laikipia, Kenya

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Abstract

This article examines the relationship between settler colonialism and biodiversity. Focusing on Laikipia, Kenya, we argue that the types of plant and animal species present in the landscape have been shaped by historical and present power relations and often support settler colonial projects. We introduce five modes of violent ecological transformation that have been used to prolong and advance structures of settler colonialism in Laikipia: eliminating undesirable species from landscapes; rewilding landscapes with species deemed more desirable; selectively re-peopling nature to create seemingly inclusive wild spaces; rescuing species at risk of extinction to shore up moral support for settler ecologies; and extending the range of settler ecologies by scaling wild spaces. Through these modes of ecological transformation, ecological relations of use and value to settler colonialism live on while other(ed) ecological relations are suppressed or erased. As efforts to implement the post-2020 Global Biodiversity Framework (GBF) gain momentum, attention to settler ecologies is vital. Although there is no denying that radical action is needed to halt and reverse global biodiversity loss, there is a pressing need to question what types of nature will be preserved through the GBF and whose interests these natures will serve.

Keywords: Settler Colonialism, More-than-human, Biodiversity Conservation, Global Biodiversity Framework, Laikipia, Kenya

INTRODUCTION

Over the last two decades, Laikipia¹, Kenya, has become renowned as a global biodiversity hotspot. The region contains Kenya’s second largest elephant population of roughly 7,000 individuals; growing and stable numbers of endangered ungulates, such as Grévy’s zebra and reticulated giraffe; and substantial numbers of apex predators, including lions, cheetahs, leopards, lions, and wild dogs (Waweru et al. 2021; WildLandscapes 2023). Laikipia also supports 43% of Kenya’s critically endangered eastern black

rhinos (WildLandscapes 2023). Bucking the trend amidst a worsening biodiversity crisis, Laikipia is often seen as a “modern-day wildlife conservation success” (LWF N.D.a).

Rather than restoring a previous or primordial state of nature, conservation in Laikipia has led to an altogether new iteration of nature. If one were to travel back in time to the mid-twentieth century, most land in Laikipia would be used for large-scale wheat farming and cattle ranching in what was then known as Kenya’s White Highlands. Beyond livestock, few large mammals were found on the cattle ranches that dominated the landscape following over-hunting by white settlers (Steinhart 2006). Go back further to the 1920s and 1930s and the white settlers who had only recently acquired land on the plateau were culling wild plant and animal species, replacing them with European imports or hybrids, and clearing the land of shrubs and trees for pastures and farms. All this was made possible by colonial land-alienation policies, the violent eviction of Maasais and other groups to make way for white settlement, and policies of racial segregation that formalised the White Highlands. Travel back even further in time before colonial settlement, and

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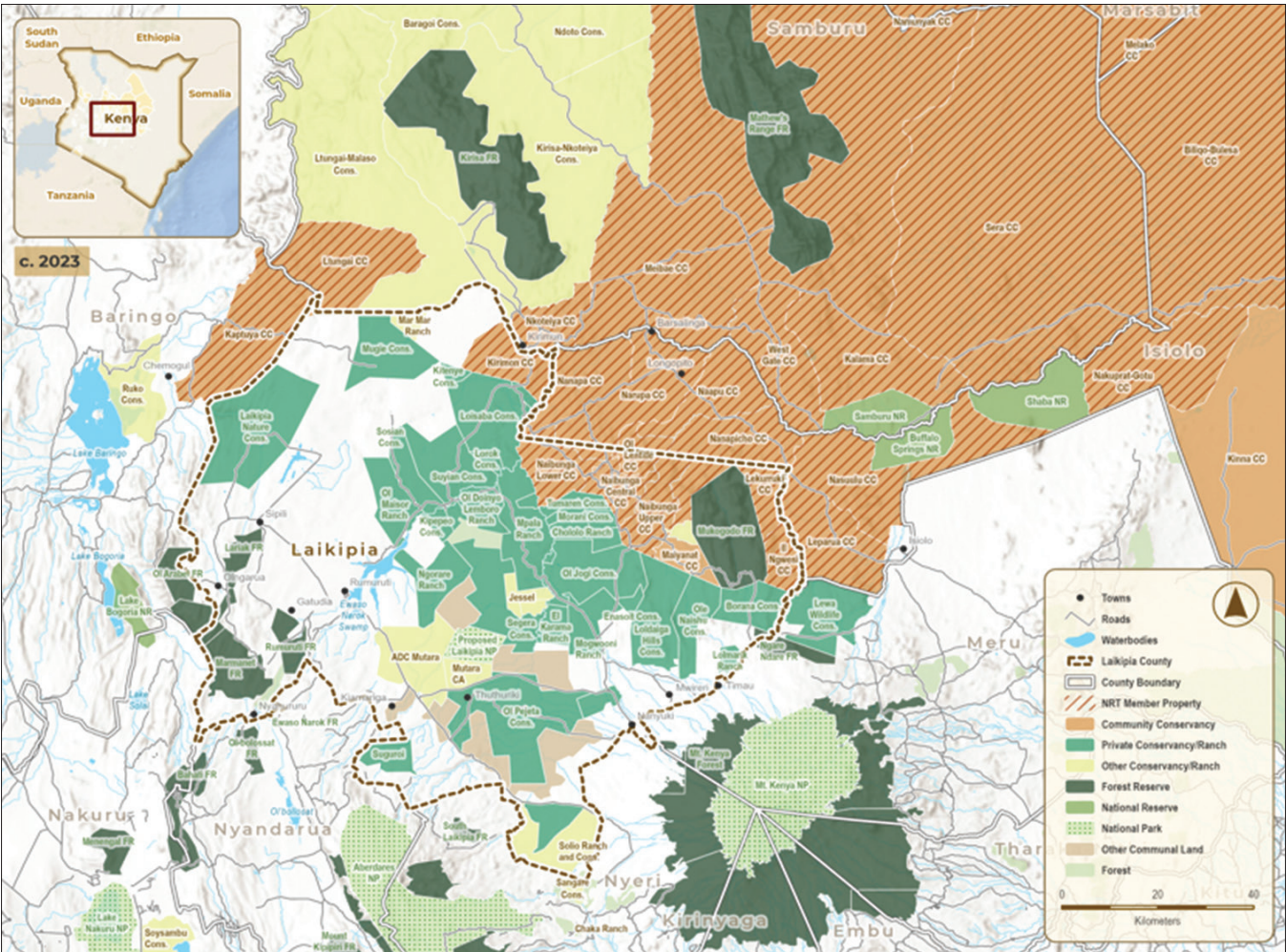
ecological relations in the area would have looked different yet again. Evidence suggests more diverse vegetation—including fruits, herbs, and roots of value to Indigenous Peoples—in what are now largely grasslands and landscapes shared by wildlife, livestock, and people (Taylor et al. 2005; Lolwerikoi 2010). These pre-colonial ecologies were not separate from human society, but intimately connected to and shaped by the lives of those inhabiting the region.

In this article, we critically examine how Laikipia's colonial settlement has altered and shaped its biological diversity—namely, the varieties of plant and animal life in the region today. Taking Laikipia as a case study (see Map 1), we reflect on how settler ecologists have unmade and remade biodiversity and ecological relations to secure settler colonial advances. We use the term settler ecologists in reference to all those who consciously and unconsciously participate in the elimination and replacement of pastoralist ecological relations with those that enable structures of settler colonialism to endure. Although historically this mainly included people of European descent who settled Laikipia during the colonial era, we suggest that a much wider cast of characters is involved in (re)producing settler ecologies today. This includes national

and international conservation actors, conservation research institutions, and conservation financiers and investors who provide the authority, expertise, and capital needed to sustain settler ecologies.

In the analysis that follows, we introduce five modes of violent ecological transformation that have been enacted by settler ecologists at different points in time to rearrange ecological relations in ways that prop up and prolong settler colonialism as a structure. These are: eliminating undesired species to deplete landscapes of existing ecological relations; rewilding landscapes with desired species to make them serve settler interests; selectively repeopling nature to create seemingly inclusive wild spaces that also capitalise on biocultural diversity; rescuing species at risk of extinction to shore up support for settler ecologies; and extending the range of settler ecologies by scaling wild spaces. Although there is a chronology to these modes, they have not unfolded in a strictly linear way and none are relegated to any point in history. They all continue to resurface, interact, and shape each other.

Through this analysis, we build on a well-established body of political ecology literature that problematises the ways in which biodiversity conservation globally has been marked by



Map 1
Laikipia, Kenya, and surrounding landscapes and land uses

coloniality and perpetuates historical and neocolonial violence (Neumann 1998; Singh and van Houtum 2002; Ramutsindela 2004; Brockington and Igoe 2006; Kepe 2009; Akama et al. 2011; Mbaria and Ogada 2016). This work has shown how the legacies of colonial-era institutions, laws, and labour regimes play out through biodiversity conservation today. However, this literature has tended to be anchored by a degree of human exceptionalism and therefore pays less attention to how animals, plants, and more-than-human entanglements have been subjected to and enrolled in enactments of (colonial) injustice (Srinivasan and Kasturirangan 2016). The contribution we make in this article drags the concerns of environmental history (Crosby 1989; Griffiths and Robin 1997; Beinart and Hughes 2007) into the present while speaking to recent research and writing on the more-than-human nature of settler colonialism (Todd 2014, 2017; Blair 2017; Mamers 2019; Dicenta 2023; Braverman 2023). Bringing together these bodies of literature, we show how the assemblage of actors we call settler ecologists use certain species and ecological relations to support and advance settler colonial projects, and reflect on the implications of these projects for humans and nonhumans.

This contribution is particularly urgent as efforts to meet biodiversity targets outlined in the post-2020 Global Biodiversity Framework (GBF) gain momentum. There are assumptions made in the GBF about the extent of global agreement over what type of nature should be valued, maintained, restored, and safeguarded. In reality, in places such as Laikipia, there is far less consensus over what a conserved landscape should look like—including the ideal density, distribution, and balance of wild and domesticated species it should support. These are not apolitical or technical conversations immune to debate. Moreover, historically privileged groups often hold an undue amount of power in determining which nonhuman species and ecological relations matter most to our collective future. As we show in this article, the composition and balance of biodiversity and the nature of ecological relations in a given landscape is shaped by present and historical power relations. Although there is no denying that radical action is needed to halt and reverse global biodiversity loss, there is an urgent need to question what types of nature will emerge and be preserved through the GBF and what interests they will serve.

This article is informed by research conducted in Laikipia between 2015 and 2023, utilising data from formal and informal interviews, participant observation, and some archival analysis. In total, we spent over 1.5 years in Laikipia, with our methods engaging a broad range of settler ecologists and spaces of settler ecologies—including both private and community conservancies.

We proceed by briefly introducing the idea of settler ecologies before discussing the five modes of ecological transformation that have (re)produced settler ecologies in Laikipia. Our empirical discussion is streamlined, as it is fleshed out in greater detail in our book (Enns and Bersaglio 2024). The intention of this article is to serve as a companion

piece to the book, allowing us to underscore the salience of settler ecologies in Kenya and in other settler colonial contexts in the post-2020 era. We conclude the article with a warning around the risk of reproducing settler ecologies through action and financing tied to the GBF.

SETTLER COLONIALISM AND ECOLOGICAL RELATIONS

What differentiates colonial and settler colonial forms of conquest is the colonisers' relationship to the colonised territory and its inhabitants (Wolfe 1999). Colonialism involves the extraction of materials and exploitative or indentured labour to metropolises—the homelands of colonial powers. In contrast, settler colonialism is undertaken through the ongoing occupation of colonised land by settler populations: Settler colonialists arrive with the intention of remaining permanent (Velednitsky et al. 2020). As Wolfe argues, what makes settlers different is that they “come to stay”, making settler colonialism an enduring structure, rather than event (Wolfe 2006: 388; see Kauanui 2017).

Acquiring territory is the first step of all settler colonial projects; a process often made possible through *terra nullius*—claims that lands to be occupied are empty, unused, and awaiting settlement. In historical writing by settlers around the world, landscapes subjected to colonial settlement were routinely described as places of waste or emptiness, waiting to be brought to life by “the brilliance and ingenuity of rugged and ambitious arrivistes” (Hugill 2017: 6). Such narratives were at play when settlers arrived in Kenya. Following an 1883 expedition in Kenya funded by the Royal Geographic Society, Scottish explorer Joseph Thomson wrote: “The greater part of Lykipia – and that the richer portion – is quite uninhabited, owing, in a great degree, to the decimation of the Masai of that part” (1887: 238). The (mis)representation of Laikipia as a vast space lying idle and empty was used as justification for white settlement (Huxley 1948, 1953; Gravesen 2020).

In reality, lands seized by settlers are rarely, if ever, indefinitely empty. Rather, Indigenous presence is erased and denied by arrivants (Veracini 2008; Miller et al. 2010). Most settler colonial projects require that expropriated territory be cleared to create space for settler occupation and use. This is achieved by displacing existing populations to reserves, refusing them title, and enacting policies of racial segregation and genocidal violence (Hugill 2017: 6). For this reason, settler colonialism has been described as having a “logic of elimination” as it “destroys to replace” (Wolfe 2006: 388; see Sayegh 1965). This includes the elimination of Indigenous Peoples by settlers to establish themselves on native territory (Wolfe 2006: 388), as well as the elimination of existing polities as settler colonisers attempt to exercise sovereignty over the territories they have claimed (Saito 2014: 22).

A key contribution we make in this article is to multispecies understandings of settler colonialism. A small but growing body of work shows how settler colonialism manifests through more-than-human beings, entities, and entanglements in other settler colonial

contexts, such as North America, Australia, and Israel-Palestine (Todd 2014, 2017, 2022; Blair 2017; Mamers 2019; Gillespie and Narayanan 2020; Dicenta 2023; see Aderinto 2022; Lenzner et al. 2022; Braverman 2023). Informed by this work, this article considers how defining characteristics of settler colonialism—its logic of elimination and its endurance—are extended through the more-than-human world. This results in the ongoing erasure and replacement of ecological relations that sustain Indigenous Peoples' and Local Communities' (IPs' and LCs') lifeworlds with those of use and value to settler colonialism.

Alongside extending multispecies understandings of settler colonialism to Kenya—a country often overlooked as a contemporary settler colonial stronghold—our analysis cautions that the unmaking and remaking of ecologies on expropriated land is not a historical moment relegated to the past. Rather, the violent alteration and erasure of ecological relations to prop up and prolong settler colonialism is fundamental to how settler colonialism continues to operate structurally and endure into the present.

What is to be gained from a multispecies analysis of settler colonialism in Laikipia? As Todd writes, “Understanding how settler colonialism structures itself in the lands, waters, and atmospheres that it invades gives us the power to refract its efforts and assert something liberatory in its place” (2017: para 3). Continually examining how colonial power operates is essential to “revealing, supporting and pursuing radically different ecologies that are more inclusive and just” (Mabele et al. 2021). In revealing how relations between humans, animals, plants, and other entities in landscapes can be seized and altered to serve settler colonial interests and prop up structures of settler colonialism, this article supports efforts to promote and realise ecologies otherwise—including those that once existed, that persist in defiance of settler colonialism, or that could exist in the future.

MAKING SETTLER ECOLOGIES

This section describes how biological diversity and ecological relations have been repeatedly altered on expropriated land in Laikipia since the arrival of settlers. We identify and describe five modes of ecological change that have been enacted by settler ecologists over time to reproduce ecological relations that secure and advance settler colonialism. For heuristic reasons, we introduce these modes chronologically and discuss each as a distinct phase. In reality, none are time-bound or exist in isolation from each other. At different points in time, settler ecologists may lean more heavily on certain modes of ecological unmaking and remaking than others; yet, all the modes are used by settler ecologists and may be deployed in unison to reconfigure ecological relations in ways that secure and advance settler colonial interests.

Eliminating

When white settlers first began to arrive in Laikipia in the late 1800s, they quickly began radically transforming the

landscape. Settlers cleared and culled occupied land of undesired fauna, flora, and landscape features. They hunted prodigiously to eradicate vermin from their properties, while also hunting for subsistence and to supplement their incomes (Steinhart 2006). White Kenyans today now speak about the hunting practices of their fathers and grandfathers with a taint of humour and discomfort, explaining large mammals like black rhinos used to be seen as pests, “*like fucking rabbits*”,² and exclaiming “*I don't know what to do with all the photos of dad with dead rhinos*”.³ By the time of Kenya's independence in 1963, black rhinos, eastern mountain bongos, elephants, leopards, and lions were rare if not locally extinct in Laikipia, as were other endemic species such as eland, gerenuk, giraffe, hartebeest, zebra, and oryx (Duder and Youé 1994).

Settlers also worked to weed out and breed out forms of life deemed superfluous or threatening to colonial settlement, implanting and importing more desirable genes and species. This included importing valuable plant species for cereal monoculture cropping, such as wheat, maize, barley, and oats, and later high-value crops for export, such as coffee and tea. Preferred livestock breeds from across the British Empire were introduced, including Hereford, Sussex, Shorthorns, and Red Polls (Simpson 1973). Sires were selectively bred with local ewes and cows to create crossbreeds, as settlers attempted to establish a commercially viable livestock sector and dairy industry through their farms and ranches (Overton 1987; Njuguna 2019).

The erasure and replacement of indigeneity is fundamental to settler colonialism (Wolfe 1999, 2006) and extends to the ecological realm. This is well-illustrated by the following quote from Elspeth Huxley, who was a white settler and prolific writer on white Kenya:

It is sometimes said that if Europeans were to withdraw from Africa today the continent and its people would revert to savagery and all traces of our civilisation would be expunged. This is not altogether true. Whatever the fate of our cultural influence, we should at least leave behind indelible traces of our cattle and sheep in the hereditary mechanism of animals which survived us. We should leave plants that have colonised the soil perhaps more permanently than men – wheat and barley, sisal and coffee, oats and tea, potatoes and peas, fruit and wattle trees. These at least would remain as a memorial to Europe's conquest of Africa.

(Huxley 1953: 176)

By eliminating and replacing indigenous fauna and flora, ecological relations imposed by settlers contributed to the violent erasure and suppression of indigeneity (see Todd 2022). In many parts of Laikipia, this process permanently and violently altered ways of living for Indigenous Peoples and their animals. For example, as cereal crops colonised the region, the living arrangements, livestock husbandry and agricultural practices, mobility patterns, rhythms of labour, and consumption habits of people shifted away

from subsistence livelihoods towards dependence on cash crops. In some cases, this has increased people's and livestock's vulnerability to economic and climatic shocks. For example, some pastoralists argue that the imported breeds that now dominate the landscape are harder on the environment and fare worse in drought than indigenous breeds.⁴

Existing work on settler colonialism in Africa draws attention to the durability of settler colonial structures in political institutions (Mamdani 2006) and land policy (Bhandar 2016; Løvschal and Gravesen 2021) and associated forms of direct and indirect violence. A focus on ecological elimination reveals how and why the biological diversity of settler colonies also continues to bear the imprint—and do the violent work—of settler colonialism.

Rewilding

By independence in 1963, many settlers feared for their future in Kenya. The risk of land redistribution loomed and agricultural policies were shifting away from favouring settlers (Gow and Parton 1995). A nationwide ban on hunting was implemented in 1977, presenting a challenge to settlers who relied economically on sport and trophy hunting (Steinhart 2006). During this period, second- and third-generation settlers also faced a reckoning over their community's contributions to biodiversity loss through culling and hunting. As Daphne Sheldrick, who founded Sheldrick Wildlife Trust, which raises and releases orphaned animals such as elephants and rhinos, wrote, "How lightly my ancestors shot at animals. For us, now living in a different era, ... the actions of my forefathers appear shocking and difficult to understand" (Sheldrick 2012: 6–7).

In response to these varied coinciding crises, some settlers with large landholdings in Laikipia began to transform their working ranches into wildlife conservancies to diversify their livelihood portfolios through wildlife tourism and conservation revenue (Kock 1995). However, to be recognised as a conservancy, settler land first needed to be able to attract and support wild species (Elliott and Mwangi 1997)—including those that had been hunted to (near) local extinction just decades prior. Settlers also needed to create ecological conditions and relations that would be interpreted as wild.

An important step in making their properties appear wild involved reducing livestock herds and restricting their movements where necessary, minimising grazing pressure, and allowing vegetation to regenerate where needed (Mizutani 1999). Some ranches also reduced other livelihood activities such as gardening and fish farming, which increased water volumes and regenerated drained wetland habitats (Giesen et al. 2006). This remains an ongoing process today, with ranches repurposing now obsolete ranching infrastructure such as livestock dams into water sources near newly constructed tourist facilities to attract and sustain wildlife.⁵ Efforts such as this can attract common prey species such as dik-diks, duikers, and other *Bovidae* (Kock 1995).

However, attracting and sustaining apex predators such as leopards and lions and large herbivores such as elephants and rhinos was more arduous and costly. Fortunately for settlers, Kenya Wildlife Service—previously the Wildlife and Conservation Management Department (WCMD)—and international conservation organisations were supportive of their efforts. During the 1980s and 1990s, KWS was locked in a bloody war to protect elephant and rhino from poaching elsewhere in the country (STR N.D.). Settler ranches represented a new and relatively easily defensible source of habitat. KWS financed the translocation of these species to ranches such as Solio and Lewa, while international conservation organisations like the World Wide Fund for Nature (WWF) provided capital, institutional support, and expertise to sustain and secure these populations after translocation (STR N.D.; Dublin and Wilson 1998). The category of settler ecologists began to expand during this period, with state actors, international conservation organisations, and settlers now working together to rewild settler properties.

As ecological conditions on settler properties were transformed, wildlife populations grew (Kock 1995). During the 1980s and 1990s, wildlife abundance decreased almost everywhere in Kenya aside from Laikipia, where most populations were stable or growing (Kinnaird et al. 2012). For instance, on Lewa Wildlife Conservancy—one of the first settler properties to be rewilded—zebras increased from 374 to 1,529 individuals; giraffes from 181 to 534; and impala from 231 to 560 during the first decades of rewilding (Kock 1995). In the larger landscape, the elephant population increased from 2,969 to 6,365 individuals between 1992 and 2012—a 114% increase in just 20 years (Litoroh et al. 2012).

If the first mode of settler-led ecological change in Laikipia was effectively about dewilding, the second was about rewilding. Our understanding of rewilding is informed by Jørgenson's (2015) argument that rewilding is rarely about restoring ecological relations that once actually existed, but is instead about restoring certain or select aspects of nature for a particular purpose. In this case, rewilding was used to create landscapes that sustained settlers economically. For example, according to van den Akker, Solio's owner, Courtland Parfet, compared his use of rhino to "old French families taking down a painting from the wall when short of funds – when he needed money because his cattle ranch did not bring in enough, he simply sold a rhino" (2016: 118).

Beyond economic gain, the ecological relations produced through rewilding also catalysed new sources of political solidarity and moral support for settlers amidst the contentious land politics of the (post-)independence era. Speaking of Lewa, one white Kenyan from Nanyuki explained, "[They] were smart. They put rhino on their land. That got the whole international community behind them".⁶ As the species prized by conservationists and tourists increased on newly established private conservancies, other(ed) ecological relations—such as relations between pastoralists, livestock, and rangeland vegetation—would experience renewed marginalisation in the landscape, as is discussed in the subsequent section.

Repeopling

Through rewilding, settlers and conservation organisations began to create private landscapes where charismatic and endangered species could be protected in secure habitats while remaining easily accessible to elite international tourists (Elliott and Mwangi 1997). High-end tourists demand all but guaranteed encounters with wild animals—typically The Big Five (i.e., buffalo, elephant, leopard, lion, rhino) in Africa—along with unencumbered panoramic views and unfettered access to pristine wilderness (see Ávila-García and Sánchez 2012). High-end tourists are also often displeased by the sight of domestic animals and signs of human presence, such as electric fences, as both tarnish the wilderness aesthetic they pay for (Butt 2012). For years, Laikipia's private conservancies worked hard to keep pastoralists and their livestock beyond the gaze of tourists—using a careful, unseen choreography to avoid chance encounters between tourists and livestock during safari activities.

Over time, these trends resulted in settler properties becoming less porous due to the fortification of conservancy boundaries and greater reliance on armed wildlife rangers and security personnel. Pastoralists and their livestock were confined to interstitial spaces between settler properties or on the margins of arid rangelands to the north. They were barred from accessing ancestral grazing lands and water sources inside private conservancies. Amidst periods of drought and other hardships, pastoralists would sometimes assert their right of access and enter conservancies illegally. In recent years, this has led to high-profile incursions where violent conflict has erupted between herders and security forces. In 2017, separate incursions into conservancies culminated in the death of one settler and shooting of another. Multiple herders and rangers also lost their lives and, in one instance, hundreds of cows belonging to Samburu pastoralists were massacred in retribution for trespassing on a private conservancy (NTV Kenya 2017; see Fox 2018). These events led to fears—shared by the national government—that booking agents and tourists would be turned off Laikipia for safety reasons. They also caused some white settlers concern over their future in the county (Bersaglio 2018).

Attempting to resolve these tensions strategically, settler ecologists began experimenting with incorporating some attributes of pastoral ecologies into private conservation. One common approach was permitting small numbers of selected cattle, accompanied by vetted herders, to graze inside conservancies. These arrangements have been made on an individual, *ad hoc* basis, and through formalised arrangements, such as the Northern Rangelands Trust's (NRT's) Livestock-to-Market scheme, where cows are purchased from pastoralists, grazed on conservancies and later sold at market (Fox 2018). Many conservancies also go to great lengths to publicise their espoused contributions to pastoralist communities on social media and websites. For example, Borana Conservancy explains, "We encourage all the guests to Borana Conservancy to visit our neighbouring Maasai community for a cross-

cultural experience – dancing, shooting bows and arrows, drinking tea and trying your hand at beading" (BC ND; 16). These activities are offered by several other conservancies and represent another way settler ecologists have attempted to incorporate pastoralists into the ecological relations they package and sell.

To fully understand how and why settler ecologists have selectively repeopled conservation landscapes, it is necessary to consider what settler ecologists gain from these arrangements. To start, there are ecological benefits to incorporating pastoralists and their cattle, specifically, into private conservancies in small numbers. While large populations of livestock can have negative implications for the distribution and abundance of wild species (Kirathe et al. 2021), the planned grazing of smaller herds can be useful for maintaining healthy ecosystems that are conducive to livestock, wildlife, and biodiversity. As ranching came to supplement conservation and tourism on private conservancies, the ecological benefits of livestock diminished with reduced herd sizes. Incorporating select cattle from pastoralist communities into conservancies on a temporary basis helped conservancy owners and managers offset this in a controlled manner with little-to-no added costs. As one conservancy owner explained, "it works great for us and helps them [pastoralists] too".⁷

Alongside these ecological benefits, choreographed and controlled encounters with pastoralists and livestock can also work to enhance the moral legitimacy of the conservation sector. With the mainstreaming of community-based natural resource management in the 1990s and 2000s, the notion that preventing extinction requires local communities to benefit from conservation reached conservationists and ethically-minded tourists around the world. Settler conservancies in Laikipia that manage grazing schemes for pastoralists are described as "beacons of sustainability" and "conservation trailblazers of the highest order" (Jones 2019; Marshall 2021). Furthermore, the average private conservancy would not qualify for development aid and funding from organisations such as USAID if not for these types of activities. It is only through repeopling that these revenue streams have been opened up. In these ways, bringing pastoralists and their livestock onto private conservancies has helped settler ecologists secure a future for wildlife in the wider landscape, while also securing and financing their own position.

Rescuing

Long before white settlers officially took up the mantle of conservation, they had been rescuing wildlife found injured on their properties or orphaned by their guns. White settler women, in particular, are now acclaimed for adapting techniques in animal husbandry for the rehabilitation of wild species, such as lions, and developing special milk formulas for orphaned animals such as elephants. This is how Joy and George Adamson, whose lion rehabilitation efforts were depicted in the Hollywood film, *Born Free*, got their start, as well as Sheldrick Wildlife Trust.

Over time, rescuing evolved from a hobby to a full-fledged industry, with settlers shifting their sights from saving individual orphaned or injured animals towards rescuing entire species from extinction. In Laikipia, this shift gained traction in the 1970s when ranches such as Solio established rhino sanctuaries with the aim of breeding, translocating, and restocking populations across eastern and southern Africa. In addition to attracting funding from wealthy benefactors, zoos, and animal welfare groups, some sanctuaries began to charge tourists fees to feed, touch, and in some cases play with rescued animals. Quite quickly, the conservation-by-sanctuary movement proved to be financially productive for some settlers and important to their efforts to rebrand themselves as guardians of Kenya's wildlife post-independence.

As anxieties and fears about the global biodiversity crisis have grown, Laikipia has experienced a boom in wildlife rescue ventures. Elephant orphanages and sanctuaries have been established in new terrains such as Reteti in Namunyak, an NRT conservancy in Samburu. Elsewhere, existing efforts to restore populations of endangered species have gained renewed support from the government and international community, such as efforts to translocate and release eastern mountain bongo populations bred and raised in the United States (US) to a secure sanctuary in the foothills of Mount Kenya. As tourist demand for up-close encounters with rare and endangered species on the brink of extinction has reached fever pitch, it has ushered sanctuaries in Laikipia into the global spotlight.

This is perhaps best exemplified by Ol Pejeta Conservancy. In 2009, Ol Pejeta imported three of the world's last northern white rhinos from the Czech Republic—including the species' last living male, Sudan. Ol Pejeta then ran a series of media and fundraising campaigns, informing the world that the future of this species was in its hands. Tourists flocked to the rhinos' enclosure for a "once in a lifetime opportunity to feel what extinction feels like" (www.kifaruthefilm.com). International celebrities, ranging from Leonardo DiCaprio to Nargis Fakhri, did photo shoots with Sudan and promoted Ol Pejeta's efforts to save this and other species threatened with extinction. The conservancy also became a space of experimentation for using advanced reproductive technologies to save or even bring back species from extinction. This type of rescuing has opened up new revenue streams through tourist demand for highly affective encounters with endangered species and growing demand for anti- and de-extinction scientific research.

There is little evidence that taking abandoned, orphaned, or injured animals from their natural habitat and requiring them to interact directly and indirectly with tourists is justified as an effective model for species preservation, with questions about animal welfare also often sidelined. Nevertheless, the model continues to gain traction. Conservation-by-sanctuary creates highly marketable and profitable tourism encounters that condition animals to sustained human presence and interaction. If and when released, these quasi-wild animals may choose to remain close or regularly visit tourism facilities run by conservancies and sanctuaries. They might also remain dependent on humans for survival, necessitating

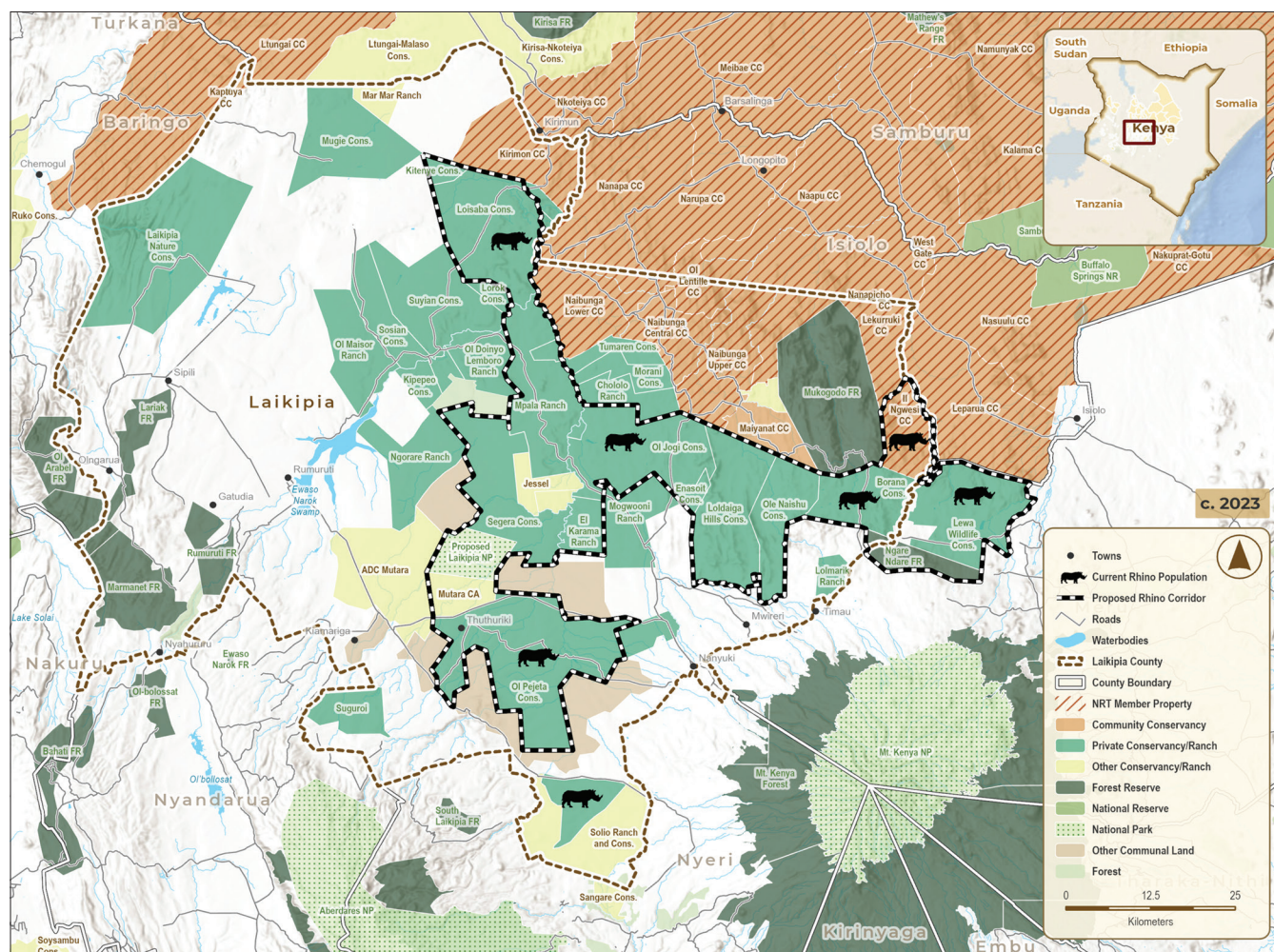
ongoing intervention by settler ecologists and further securing the important role of settler ecologists in this landscape. In these ways, rescuing works to reproduce structures of settler colonialism by producing populations of animals that require large, secure sanctuary spaces to survive, in turn playing a role in securing this land for settler ecologies in the future.

Scaling

The final and latest mode of ecological transformation in Laikipia is the scaling of land for conservation. With the threat of a mass extinction event looming, radical plans are being proposed globally to secure as much land as possible for biodiversity. These include propositions to set aside 30 percent of the Earth's surface for conservation by 2030. Accordingly, Kenya has made 'ecological connectivity conservation' a pillar of its national development strategy, *Vision 2030*. Ecological connectivity conservation seeks to create integrated systems of protected core habitat areas that allow large, diverse populations of wildlife to move across entire landscapes to meet their sustenance needs and increase their genetic diversity and resiliency (GoK 2019). In this way, ecological conservation connectivity is claimed to differ from the traditional protected area model that relies on walling-off habitat.

In Laikipia, various scaling initiatives are underway, spurred on by Kenya's national plans for ecological connectivity conservation. One such example is *Ukanda wa Vifaru* ('the rhino belt'). Once complete, this proposed initiative will encompass 544,000 acres of land between Ol Pejeta to the south, Loisaba to the north, and Lewa to the east (WildLandscapes International N.D.) (see Map 2). *Ukanda wa Vifaru* intends to bring down fences separating conservancies to allow for "the unhindered movement of species and the establishment of interconnected landscapes, helping rhinos thrive in today's changing world" (WildLandscapes International 2023). However, more resources are still required. In June 2023, private conservation actors from Kenya, including Ol Pejeta and Ol Jogi, lobbied members of the US Senate and House Appropriations Committees for increased support from bodies like USAID towards Kenya's landscape-level conservation initiatives (WildLandscapes International 2023).

In any space where highly endangered species, like rhino, roam with relative freedom in Kenya, the movement of humans and livestock is restricted and closely monitored. The outer perimeter of *Ukanda wa Vifaru* will therefore likely remain fortified, making use of an innovative ring fencing system with motion-triggered camera traps, and secured by air and ground reconnaissance and specialised wildlife rangers. Due to the level of security required to guarantee the safety of rhino and other critically endangered populations within landscape-level conservation initiatives, some have argued that ecological connectivity conservation results in more rather than less bordering of conservation areas and greater separation between people and nature (Bluwstein 2021; see Ramutsindela 2007). Within newly connected landscapes, such as *Ukanda wa Vifaru*, certain ecological relations will be permitted—such as those



Map 2
Proposed rhino corridor, Ukanda wa Vifaru, in Laikipia

between rangers, rhinos, and tourists—and others disallowed, thereby subsuming and foreclosing possibilities for ecologies otherwise, including those where people, livestock, and wildlife share landscapes. In other contexts, such initiatives have been critiqued as a form of ecological apartheid in which the landscape is segregated racially *as well as* ecologically and taxonomically (Koot et al. 2022).

Scaling is not just a spatial strategy for extending settler ecologies, it is also a temporal one. With the assistance of The Nature Conservancy, Laikipia Wildlife Forum is reportedly establishing a Conservation Land Trust, which will “ensure the contiguity and connectivity of rangelands for wildlife” by allowing landowners to “leave their land in conservation status for perpetuity” (LWF N.D.b). Such initiatives underscore settler ecologists’ aspirations for permanence. Increasingly in Laikipia, these aspirations are pursued through national plans and international goals for ecosystem connectivity, with domestic and foreign actors working to the scale and temporality of settler ecologies. This illustrates how diverse actors with different agendas can come together to secure a future for settler ecologies

in long-lasting ways and at larger scales than previously imagined.

LOCATING SETTLER ECOLOGIES

In Laikipia, settler colonialism has always been an ecological project. Although the specific ways in which settler colonialism has become structured ecologically have changed over time, the elimination and replacement of species and reconfiguration of ecological relations has been central to securing past settler colonial advances and guaranteeing a future for settler colonialism. From breeding- and weeding-out species to producing landscapes teeming with charismatic and quasi-wild animals but (largely) devoid of people and livestock, the endurance of settler colonialism in this part of Kenya cannot be fully explained without consideration for the more-than-human world.

Settler ecologies are not unique to Kenya. Rather, the constant unmaking and remaking of ecologies on expropriated land is a defining feature of how settler colonialism operates and endures today around the world. The species and ecological

relations that become the focus of settler ecologists may vary from one geographical context to the next. The different environmental approaches and regimes used to create these ecologies are also shaped by context. Yet, the use of ecological relations to prop up and prolong settler colonialism is likely to be pronounced wherever settler colonialism persists.

Some of the approaches to ecological transformation discussed above will likely hold currency beyond Kenya. Parts of South Africa, Zimbabwe, Botswana, and Namibia, where settlers arrived “with an intention to stay permanently” (Velednitsky et al. 2020: 3), have undergone similar ecological transformations to those in Kenya. Across these countries, settlers set about eliminating ecological relations that stood in the way of a colonial political economy of production, hunting wild species prone to destroying crops, and preying on livestock and supplementing their incomes through safaris and trophy hunting. Settler ecologists in these contexts also later went about rescuing decimated species, such as lions and rhinos, in fairly similar ways to what we outline above, relying on enclosing and fortifying land to create safe havens for wildlife (Suzuki 2001; Kamuti 2014; Heydinger 2021). Where conservation can occur on private land—such as in Kenya, South Africa, and Namibia—we observe many of the same species and sets of ecological relations being used to secure settler colonial interests.

In other cases, our heuristic framework may serve as a point of departure for examining how ecological relations are altered through colonial settlement. Undoubtedly, settler colonialism transformed nature in different places in different ways as it interacted with existing polities, socialities, and ecologies. For example, Canada and the US experienced a period of widespread ecological devastation in the centuries following colonial invasion. Whyte (2018) describes how US settler colonial domination of Anishinaabewaki eliminated existing ecologies so that new ecologies could be destructively created, as settler mining, deforestation, and industrialisation around the Great Lakes decimated species and introduced new ones. These actions of ecocide reflect what was being done in Kenya around the time of colonial settlement. However, some might argue that a clearer shift away from settler ecologies can be seen in some parts of North America than can be seen in Laikipia; for example, through collaborations between Indigenous Peoples and settler colonial government bodies that support species reintroduction and cultural-ecological reconnection and restoration (Mamers 2020; Artelle et al. 2021). Thus, variation exists in how settler colonialism works through and impacts on nature, but settler ecologies exist and persist well beyond Kenya.

THE (UN)SETTLED FUTURE OF BIODIVERSITY

Although settler ecologies are not solely a product of biodiversity conservation, they have become intimately entangled with the sector over time. This poses serious questions about whether current and future conservation action to halt and reserve biodiversity and species loss will

disrupt or advance settler ecologies in settler colonial contexts like Laikipia. The 2020s are destined to be a critical decade for biodiversity conservation, following the IUCN World Conservation Congress in Marseille and the newly adopted global biodiversity agreement, the Kunming-Montreal GBF in 2022. Massive amounts of funding are being made available to support the implementation of the GBF, including Yuan 1.5 billion (\$233.21 million) pledged by the President of China, Xi Jinping, as part of a new “Kunming Biodiversity Fund”—an amount that doubles current European Union funding.

A key objective of the GBF is to protect 30 percent of the planet by 2030, known as the 30x30 Initiative, which will be achieved by expanding national parks alongside other area-based conservation measures, such as wildlife corridors, dispersal areas, and private protected areas. 30x30 has been met with concerns about the continuity of colonial conservation approaches and practices through the acquisition of new land and territory for conservation (Loring and Moola 2020; Cariño and Ferrari 2021; Reyes-García et al. 2022). As Magnusson, who has been involved in GBF negotiations, explains, “Indigenous Peoples for good reason are wary of this initiative as some of the last remaining areas of biodiversity are found on their territories. We are concerned that we may be deprived of our lands and kept from accessing our traditional hunting, gathering, and spiritual spaces” (2022: para 9).

Even as efforts grow to address land concerns associated with the GBF, the agenda risks reinforcing colonial legacies and historical injustices in ways that go beyond land access and use. As the preceding sections show, the ecological relations created and conserved by settler ecologists can serve as conduits for settler colonialism, just as property and labour regimes in conservation often do. So far, there has been little if any debate about what types of nature will emerge and be preserved through the GBF or what and whose interests these natures will serve. In the absence of such debate, there is a risk that the ecological relations (re)produced in the post-2020 era will reinforce and advance settler colonial power.

Comparatively, in many settler colonies, there is clear disagreement about what types of biodiversity and ecological relations should be valued, restored, and safeguarded to ensure better futures for all. In Laikipia, settler ecologists often make endangered charismatic species—like elephants, rhinos, lions, and Grévy’s zebra—a focal point of conservation, whereas, pastoralists tend to position different species as central to their conservation aspirations. This is exemplified in a quote from an Indigenous rights advocate and pastoralist from Il Ng’wesi community conservancy in Laikipia when asked to describe his vision for biodiversity in the conservancy:

When I close my eyes and imagine the landscape as my father and grandfather used to describe it, I see bushes and trees with grasses growing in between the trees [rather than vast grasslands] ... Other animals used to mix a lot with livestock and graze, like Hartebeest ... The livestock they had in those days were Indigenous, meaning they were not heavy feeders on the land.

(Enns and Bersaglio 2024)

This quote highlights a near-constant source of tension between settler ecologists and pastoralists in Laikipia, where settler ecologists position growing mega-fauna populations as a conservation success story while pastoralists are more likely to emphasise the role of other animals, including a variety of domestic and wild ungulates, in maintaining biodiversity and ecosystem health in shared landscapes.

Debates about species composition and distribution in conservation landscapes rarely come to the fore in global and national biodiversity conservation planning. Instead, there is a tendency to focus on how and where conservation should be done rather than on what should be conserved, why, and by whom. It is perhaps understandable that these challenging conversations are not taking place. Determining the density, distribution, and balance of wild and domesticated species in a landscape is neither a technical nor apolitical discussion. It is also not determined by natural selection or fate. Species at the centre of conservation agendas are shaped by relations of power: some species are given precedence over others, as a result of how those with decision-making power perceive and experience their economic value, cultural meaning, or charisma (Gordon et al. 2019; Shackleton et al. 2019). In settler colonies, these species are often linked to enduring relations of domination inherited from colonialism. Opening the floor for discussions about the ideal density, distribution, and balance of wild and domesticated species in conservation landscapes risks upsetting the existing balance of power. Such discussions are also bound to lead to thorny questions about who has the right to determine which nonhuman species and ecological relations matter most to our collective future.

Yet, strong ecological, justice-orientated, and rights-based arguments exist for letting IPs and LCs shape these decisions. In Kenya, pastoralist ecologies often involve complementary, co-dependent relationships between pastoralists, livestock, and wild animal and plant species, and these relationships have taken shape over the years through highly adaptive and flexible systems of communal land use. Well-managed, moderately stocked herds help to create nutrient-rich patches of land that contribute to plant diversity and provide palatable forage for animals (Mureithi et al. 2019). This promotes rangeland health, improving soil fertility, supporting biodiversity, and lessening fire risk (Lalampaa et al. 2016). Moving herds about the landscape allows livestock to forage in environments that vary greatly in altitude, moisture, and vegetation type and achieve a balance of different nutrients in their diet (Lalampaa et al. 2016). Movement also enables land to recover and regenerate fairly rapidly after rainfall (Melubo 2020). With this in mind, the ecologies pastoralists value and create have the potential to address many of the challenges settler ecologists have faced over the past century—including environmental degradation and disease or poor health—in trying to sustain large populations of cattle and later wildlife on fenced land. These ecologies exemplify the types of alternatives that exist to settler ecologies.

CONCLUDING DISCUSSION: TOWARDS ECOLOGIES OTHERWISE

This article demonstrates how structures of settler colonialism can be (re)produced through the more-than-human world. We describe specific ways that animals and plants are enrolled in the reproduction of space in service of settler colonialism, including: the elimination of undesired species; the replacement of these species with those more desirable to settler ecologists; the selective re-peopling of nature to capitalise on biocultural diversity; the rescuing of specific species of injured and orphaned animals to shore up moral support for settler ecologies; and the extension of ‘wild’ landscapes to scale settler ecologies.

Although our argument is derived from research in Laikipia, Kenya, the implications extend well beyond this region. Many, if not all, the modes of ecological transformation we describe can be observed in other settler societies across Africa south of the Sahara, including Namibia, South Africa, and Zimbabwe (see Suzuki 2001; Kamuti 2014; Heydinger 2021). Recognising that Africa south of the Sahara is often overlooked as a source of empirical and theoretical insight into how settler colonialism endures as a structure, we see opportunities for extending our analysis as well as comparing and contrasting how ecological relations are used to reproduce settler colonialism elsewhere on the continent and beyond, including North America, Australasia, and Israel-Palestine (Todd 2014, 2017, 2022; Blair 2017; Mamers 2019; Aderinto 2022; Braverman 2023; Dicenta 2023).

Finally, and as detailed in the previous section, the story of settler ecologies in Laikipia should serve as a cautionary tale as the world amplifies biodiversity conservation efforts through the GBF. As Mabele *et al.* (2021) suggest, acknowledging the colonial, violent logic of dominant approaches to conservation is essential to revealing, supporting, and pursuing radically different and more just approaches. Todd argues further that the power to refuse and refract settler colonialism and replace it with something more liberatory requires first understanding how settler colonialism “structures itself” (Todd 2017) through the more-than-human world and “weaponizes” nature against Indigenous sovereignty (Todd 2022). Acknowledging that certain species have, at times, been used in such ways is a necessary start for ensuring that a plurality of ecologies are sustained through the GBF opposed to only those that serve settler colonial and other power structures.

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The authors declare no competing interests in the conduct of this research.

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This research was approved by the National Commission for Science, Technology and Innovation in Kenya (*no permit number*); University of Toronto Research Ethics Committee (Ethics Approval No. 30790); University of Sheffield Department of Geography Research Ethics Committee (*no ethical approval number*).

Data Availability

Some of the data presented in the manuscript are accessible through government archives and virtual resources. Our interview dataset is extensive and contains some sensitive and confidential information, so it is not publicly available due to privacy restrictions.

Preprint Archiving

No pre-review or pre-print versions of this manuscript are available.

NOTES

- 1 In this article, we use 'Laikipia' loosely to refer to the Laikipia Plateau and adjacent areas, such as the

Samburu Lowlands and Mount Kenya and the Aberdare Range.

- 2 Interview, 8 March 2015
- 3 Interview, 19 April 2015
- 4 Personal communication, 20 May 2022.
- 5 Observations and informal interviews, February 2015; April 2015; May 2016; April 2017; August 2018; June 2019.
- 6 Interview, 8 March 2015
- 7 Personal communication, 20 July 2017

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