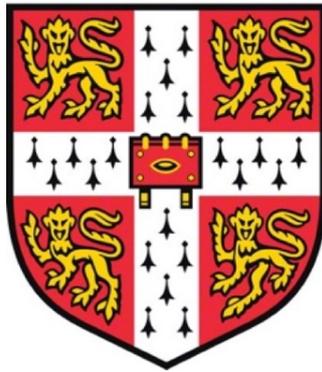


Vital Connections

A Multi-scalar Exploration of the Conservation Corridor Assemblage in Tanzania



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Author's declaration

This thesis is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the preface and specified in the text. It is not substantially the same as any work that has already been submitted before for any degree or other qualification except as declared in the preface and specified in the text. It does not exceed the prescribed word limit of 80,000 words, in line with the regulations of the University of Cambridge Department of Geography Degree Committee.

Annette Green, August 2021

Summary of Vital Connections: A Multi-scalar Exploration of the Conservation Corridor Assemblage in Tanzania, Annette Green

My research investigates corridors for wildlife conservation in Tanzania. I draw from political ecology and science and technology studies to shape my enquiry, examining processes of discursive and material construction of this form of conservation space, and exploring what happens when the idea of the corridor 'touches down' in particular places. I approach the corridor as a socially and politically contingent outcome of negotiations taking place at multiple sites, at different scales, presenting data on these processes as they take place at the (broadly defined) national, regional and local level in Tanzania. I use Q methodology, semi-structured interviews, workshops, observation and documentary review to inform my interrogation of the corridor's presence in Tanzania's literal and figurative conservation landscape.

At the national level, I offer an in-depth exploration of perspectives on corridors held by professional conservation stakeholders using Q methodology. I uncover three perspectives, and argue that the dynamic between them contributes to the corridor's burgeoning hegemony in conservation. At the subnational level, I analyse the discursive construction of a specific regional corridor purportedly connecting two protected areas in central Tanzania – the Udzungwa Mountains National Park and the Selous Game Reserve. I explore how the idea of this regional corridor gained a foothold, and highlight the resilience of the idea even as its original advocates began to abandon it as a lost cause. At the local level, I explicate the manifestation of a village-level corridor project within the same region. I show how multiple elements – including the 'mappability' of the corridor, state-sanctioned spatial planning mechanisms, profit-making motivations of international voluntourism organisations and ideas of immutable nature – combine to result in a socially intractable and ecologically questionable corridor manifestation.

My results show that corridors in Tanzania are not products of the straightforward 'application' of scientific knowledge, but rather can be understood as an assemblage – a confluence of diverse elements, connecting and colliding, and sustained by a diffuse and relational power. By highlighting selected examples of diverse manifestations of corridors at different scales, and tracing connections between them, my research draws explicit attention to processes of forming and maintaining the broader corridor assemblage in Tanzania. I emphasise that there is both an ethical and intellectual imperative to interrogate intuitively appealing conservation strategies, and to question why and how ideas gain momentum and staying power.

Preface

Dr Chris Sandbrook (Department of Geography, University of Cambridge) supervised this dissertation.

A version of chapter 5 – the first empirical chapter of this thesis – is currently submitted for publication in *Geoforum*, accepted subject to minor revisions. It was co-authored with Dr Chris Sandbrook. Dr Sandbrook provided assistance with the conceptualization and methodology, and with reviewing and editing the draft. He also guided me through the submission process. The version presented in chapter 5 of this thesis differs from the version accepted by *Geoforum* in three significant ways: first, it uses the singular pronoun 'I' as opposed to the plural 'we'; second, it refers to other material in this thesis; and third, some of the material appearing in the conclusion of the paper manuscript appears instead in the conclusion chapter of this thesis.

The PhD was also in collaboration with the World Conservation Monitoring Centre at UNEP. Neil Burgess, Chief Scientist, provided comments on the original PhD proposal submitted to the University at the application stage. He also provided practical assistance during preliminary and extended fieldwork trips.

The development of research questions and ideas, research design, collection and analysis of empirical data, and the writing and editing for all other chapters contained within this thesis represent my own work.

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I am so lucky to have been supervised by Dr Chris Sandbrook, who has helped and guided me in innumerable ways throughout every stage of my PhD. I thank him for his unwavering support and encouragement on intellectual, practical and personal levels. I don't think I could have done this PhD, or any PhD, with a different supervisor, and I'm so grateful to Chris for taking me as his student.

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List of Acronyms

CCRO	Certificate of Customary Right of Occupancy
GCA	Game Controlled Area
KILORWEMP	Kilombero and Lower Rufiji Ecosystem Management Project
KVTC	Kilombero Valley Teak Company
PLUM	Participatory Land Use Management
TANAPA	Tanzanian National Parks Authority
TAWA	Tanzania Wildlife Authority
TAWIRI	Tanzania Wildlife Research Institute
UDC	Ulanga District Council
UMNP	Udzungwa Mountains National Park
VEO	Village Executive Officer
VLUP	Village Land Use Plan

1 Introduction

Where protected areas were once considered self-contained and standalone investments in conservation, for some decades the focus has been shifting towards networks of connected protected areas at a bioregional or landscape scale (Bennett, 2003; Jongman and Pungetti, 2004). The idea of the conservation corridor has emerged in parallel as a tool or strategy for supporting ecological connectivity. In its simplest and most intuitive incarnation, a corridor is a stretch of (usually) land¹ under some form of protection which connects two existing areas of conservation value, often with a focus on facilitating movement of wild animals (Bennett, 2003; Chetkiewicz et al., 2006; Costanza and Terando, 2019; Forman, 1991; Gilbert-Norton et al., 2010; Newmark, 1993). The basic premise is that corridors can help to maintain healthy wildlife² populations across separate habitat areas (both by facilitating genetic exchange and reducing local extinction rates), facilitate migration or dispersal (for some species), or provide an escape mechanism in times of stress or shock (an increasing concern due to climate change) (Costanza and Terando, 2019; Hilty et al., 2006, 2006; Kremen and Merenlender, 2018; LaPoint et al., 2013). The corridor area is generally envisaged as different from the (implicitly hostile) area – or matrix – it traverses (Forman, 1991).

Corridors for conservation are becoming increasingly visible in professional and policy-related conservation discourse. UN Environment's Frontiers report on emerging issues of environmental concern for 2018/19 has a full section entitled 'Ecological Connectivity: A Bridge to Preserving Biodiversity'; the UN Convention on Biological Diversity's Aichi target 11 specifies 'well-connected systems of protected areas'; and in 2020 IUCN published a monograph entitled 'Guidelines for conservation connectivity through ecological networks and corridors'(Hilty et al., 2020). ConservationCorridor.org is a repository of news, blog entries, digests, teaching resources and publication lists dedicated entirely to corridors. There are multiple corridor incarnations and connectivity-related projects in different parts of the world. Some are established as networks crossing multiple international boundaries like the

¹ Corridors may include flyways and swimways, but they are not the focus of this thesis. This thesis focuses on terrestrial corridors ostensibly or purportedly providing connections for wild animals. In this thesis, wildlife can be taken to mean charismatic species. This is partly because of the emphasis on wildlife movement in many corridor definitions, and partly because of the preoccupation with the protection of charismatic wildlife in Tanzania, where this research takes place.

Meso-American Biological Corridor; some are intended to provide connectivity between existing protected areas like the North American Yellowstone to Yukon, or Tanzania's Selous-Niassa corridor; some involve 'hard' infrastructure like elephant underpasses in Mount Kenya, or reindeer viaducts in Sweden.

What unites these diverse manifestations of the corridor is, quite simply, the idea that there is something desirable about connection (or, by extension, undesirable about lack of connection) and that, therefore, it is apposite to *connect* – whether by altering or enhancing landscapes with hard infrastructure, setting aside linear tracts of land to mitigate against the disruption of anthropogenic activities, or coordinating contiguous protected areas to form aggregate connectivity across international boundaries. As will be discussed in this and the following chapters, territorial planning and spatial interventions constitute the most visible and widely-supported conservation practices, and corridors in particular have their own intuitive appeal which resonates with the (western) collectively-held belief in the fundamental incompatibility between nature³ and society, and a corresponding sense that the former should be protected from the latter (Adams, 2004; Goldman, 2009; Harris and Hazen, 2005; Kareiva, 2006; Neumann, 2005). This territorial tendency in conservation practice has had mixed impacts on people. As a necessarily spatial conservation strategy, proliferating within the global context of a drive towards increased terrestrial protection, the corridor has the potential to be hugely impactful both ecologically and socially. Understanding where corridors 'come from', the ideas underpinning the corridor as a conservation strategy, and the impacts corridors can have, therefore has both an intellectual and ethical imperative.

In the following sections, I begin by outlining the scientific premise of the corridor as a conservation strategy or tool. In section 1.2, I discuss key points of debate on corridors in the scientific community, and the corridor's position within conservation as a 'crisis discipline'. In section 1.3, I highlight some of the dominant features of the scientific and popular discourse on corridors, while section 1.4 explores social science scholarship on conservation corridors, discussing how they can be appealing, discursively flexible, and conceptually versatile. This

³ Note that the use of the word nature throughout the thesis does not mean that I wish this to be taken at 'face value', but rather as denoting nature as understood through the lens of Western philosophy/ontology. This will be discussed in more detail in section 2.1, which explores nature as a social construct.

section also highlights selected instances of corridor projects on the ground. Section 1.5 presents a research agenda for my exploration of corridors as a social phenomenon, outlining some broad-based research concerns that will shape my enquiry. In section 1.6 I outline my thesis structure.

1.1 The scientific premise of the corridor for conservation

Two seminal theories shaping the concept of ecological connectivity emerged from conservation biology in the late 1960s: island biogeography from MacArthur and Wilson (2001, originally published in 1967) and metapopulation dynamics from Levins (1969). Island biogeography posits that, on a given island which is to a certain degree removed from a species 'source' region, the number of species present on the island will be determined by both the rate of immigration from the source region and the rate of local extinction on the island. It posits that larger islands are able to sustain more species than smaller islands, but that connections *between* islands can lead to similar effects. Though terrestrial ecosystems are more complex, island biogeographic theory catalysed much academic enquiry into how the movement of species between habitat patches can determine the viability of a population (Hess and Fischer, 2001). Metapopulation theory, meanwhile, seeks to explicate local extinction and reestablishment dynamics within a metapopulation – a set of sub-populations – of a single species across patches of habitat area. The composition of a metapopulation, and by extension its viability, is dependent on the ability of that species to move between habitat patches, and is therefore directly influenced by the level of connectivity, or fragmentation, in a given landscape (Hess and Fischer, 2001; Opdam, 1991). Of island biogeography and metapopulation theory, island biogeography in particular has provided the scientific-intellectual basis from which corridors for conservation have since been generalised (Chetkiewicz et al., 2006; Haila, 2002; Simberloff et al., 1992).

1.2 Debate in the scientific community

Since the theoretical foundations for corridors were laid, a wealth of scholarship on corridors and the associated dual concept of fragmentation/connectivity has been generated. There are volumes dedicated to corridors: two editions of Hilty et al's *Corridor Ecology* (2006, 2019), Anderson and Jenkins *Applying Nature's Design: Corridors as a Strategy for Biodiversity Conservation* (2006), and Crooks and Sanjayan's *Connectivity Conservation* (2006). A database

of publications on conservation corridor science at ConservationCorridor.org – “a one-stop shop for scientists to find out the latest management tools and for managers to find out the latest scientific news and publications” – has 527 entries dating from 1987 to 2021 (Conservation Corridor, n.d.). Much of this work has been natural science employing quantitative and conservation-biological methods to measure connectivity or fragmentation, or assess the efficacy of particular approaches to ‘doing’ connectivity: 361 of ConservationCorridor.org’s database entries are categorised under the theme ‘Science’. Anecdotally, this would suggest that the discourse of ‘hard’ or natural science dominates in the wider discourse on corridors.

Meta-analyses and reviews of corridor effectiveness from Beier and Noss (1998), Gilbert-Norton et al (2010), and more recently Resasco (2019) have concluded that most studies on corridors show them to be effective in achieving the (broadly-defined) objective of ecological connectivity, with a focus on facilitating the movement of wild animals. Corridors are not presented as homogenous, or uncritically and unanimously accepted among all conservation scientists, however, and there are examples of debate within the research community on the utility of the concepts of fragmentation and connectivity. For example, in the *Journal of Applied Ecology*, Doerr et al (2011) take issue with Hodgson et al’s (2009) claims that connectivity is primarily an outcome of habitat aggregation, and as such they argue that increasing habitat extent would be more beneficial than creating habitat links *per se*. More recently, debates between Fahrig et al and Fletcher et al playing out in the journal *Biological Conservation* centred on disagreement over whether it was scientifically sound to extrapolate observations on patch size/isolation from the small scale to the landscape scale (see Fahrig, 2017; Fahrig et al., 2019; Fletcher et al., 2018). Then there are the assertions of Kareiva, who claims that connectivity is a metaphor, “an idea that has captured the imagination of conservation biologists around the world”, but that there remains “a big gap between the idea of connectivity and pragmatic insights regarding on-the-ground actions that should be taken in the name of conservation if the goal is to be long-lasting conservation” (2006, p. 293).

Others, like Hess and Fischer (2001), Chetkiewicz et al (2006), Beier and Gregory (2012) and Delattre et al (2018) identify a problematic emphasis on structural (i.e. visible) over functional (i.e. effective) connectivity in corridor research and practice, which they posit is a result of a

tendency to conceive of and represent landscapes in simplistic, binary terms, conflating spaces which appear 'natural' with connectivity. Haila (2002) explores this in his conceptual genealogy of the concept of fragmentation in ecological research, published in *Ecological Applications*, in which he unpacks and critiques the enduring tendency for fragmentation to be presented as a unitary, as opposed to highly contextual and contingent, phenomenon. Hodgson et al (2009) and LaPoint et al (2013), meanwhile, point to the epistemological awkwardness of defining, measuring and testing the impact of corridors on so-called ecological connectivity – in short, the difficulty of 'scientifically' demonstrating that corridors are effective.

By highlighting these specific instances of debate and disagreement, I do not wish to imply that corridors are presented as homogenous in the rest of the conservation science literature, or that most conservation biologists accept corridors as straightforward or simple solutions. To the contrary, there is widespread acknowledgement of the complexity of corridors: that corridor 'success' depends on context – both geographical and political; that connectivity for one species might mean fragmentation for another; that the connectivity requirements for flora and fauna are different; that structural and functional connectivity are not the same thing; and that connectivity and fragmentation can be both desirable and undesirable at different times and in different contexts (Anderson and Jenkins, 2006; Bennett, 2003; Crooks and Sanjayan, 2006; Hilty et al., 2019). As Chetkiewicz et al (2006) point out, the lack of universal rules for corridors applies as it does for ecology more generally.

Nonetheless, even when limitations of corridors, or ways of knowing about corridors, are acknowledged, the position taken is often one of precaution: consider for example the claim that "those who would destroy the last remnants of natural connectivity should bear the burden of proving that corridor destruction will not harm target populations" (Beier and Noss, 1998, p. 1250); or Bennett's question "Is there enough evidence to demonstrate that the *loss* of ecological linkages has *no detrimental effect* on the conservation of species and communities in fragmented landscapes?" (2003, p. 63, emphasis in original); or Crooks and Sanjayan's assertion that "in scientific assessment of potentially harmful action (i.e., severing natural levels of connectivity), the burden of proof should lie with proponents of the action, even in the face of our inherent uncertainty about managing ecosystems" (2006, p. 12). In

another example, Resasco et al (2017), in their paper ‘The contribution of theory and experiments to conservation in fragmented landscapes’, critique island biogeography as a basis for understanding the highly complex phenomena of ecological connectivity and fragmentation, and detail the intellectual and empirical challenge of gathering experimental data on the effects of habitat fragmentation; however, they ultimately conclude their paper by stating that “personal experience of two of the authors [...] reflects something frequently taught in our conservation biology classes – that conservation practitioners cannot afford to wait for experimental results; that conservation is too urgent to wait on science” (p115). Here, the pursuit of ecological connectivity fits within the idea of conservation as a ‘crisis discipline’ (Soulé, 1985). At the same time, these authors position connected landscapes as the ‘natural’ status quo, and by extension any change to that status quo as potentially damaging. The outcome is an impression in the discourse that there is an urgency to maintaining this ‘natural’ status quo.

1.3 Looking to nature: key elements in the corridor discourse

The loudest and clearest message communicated in most popular and scientific corridor discourse is one of corridor *acceptance*. The statement “Connectivity can be achieved by means other than corridors, but corridors remain the most effective way”, found at ConservationCorridor.org, is quite unequivocal. The concept of the corridor itself remains apparently simple, intuitively and *naturally* appealing – and it is often presented as such: “Perhaps the best argument for corridors is that the original landscape was interconnected...Corridors are simply an attempt to maintain or restore some of the natural landscape connectivity” (Noss, 1987, p. 162); and “Just as people require corridors for transportation, wildlife requires natural corridors for their dispersal and migration” (Haddad, 2015). Consider even the very title of Anderson and Jenkins’ (2006) book – *Applying Nature’s Design* – which unequivocally positions the corridor within the category of the natural, and suggests that the answer to the conundrum of connectivity can be found by simply looking to Nature itself. The epigraph to the second chapter of that book is a quotation from Soulé and Gilpin (1991), which reads “Corridors are bandages for a wounded natural landscape” (Anderson and Jenkins, 2006, p. 11) – as a message about the role of corridors in conservation practice, this barely requires deconstruction. Similar sentiments are also evident in the policy-making conservation corridor discourse: “Nature was once vast and boundless, but in an

industrialized 21st century world, this is no longer the case [...] Wildlife has less freedom to roam and free-flowing rivers are increasingly rare” (UNEP, 2019, p. 24).

To global agencies like UNEP, such impassioned pronouncements present as intuitive, logical and uncontroversial. But by appealing to an ahistorical and apolitical formulation of an untrammelled, uninterrupted, human-free wilderness, such statements are in fact imbued with normative implications and assumptions about nature and society, and about their configuration in space. These repeated appeals to the naturalness of the corridor endow them with an immutability or timelessness. There are clear parallels with the discursive construction of national parks⁴ which, as one of the most visible expressions of conservation practice, have over time been unmoored from their social roots and repeatedly presented not as outcomes of historical struggle, or products of a socially-constructed and normatively-imbued preoccupation with ‘wilderness’, but as unproblematic expressions of a capital-N Nature which simply exists ‘out there’, and for which the role of the undifferentiated Anthropos is largely constrained to identification and protection (Anderson and Grove, 1989; Cronon, 1996; Guha, 1989; Neumann, 1998; Salazar, 2010). A comparable dynamic appears to be emerging with corridors for conservation: the nuances or debates that are held within the pages of edited volumes or behind the paywalls of academic journals are effaced in the most visible and easily accessible materials about corridors.

1.4 The social life of corridors

While disunity on the corridor concept remains largely obscured in the natural sciences and mainstream conservation discourse, social science enquiry on the corridor has offered explicit and empirically-supported interrogation of the corridor and associated concepts, with a range of theories engaged and methods employed to consider the social life of the corridor in the realms of conservation knowledge and practice. In this section, I discuss various works exploring the social complexities of corridors as a category and/or strategy in conservation. I begin in section 1.4.1 with a discussion of the appeal of corridors to conservation researchers, policy-makers and practitioners, and argue that this intuitive appeal can lead to a problematic conflation of structural (i.e. visible) with functional (i.e. effective) connectivity. In 1.4.2, I

⁴ Again, this will be discussed in more detail in chapter 2.

discuss studies of two empirical examples of corridors ‘touching down’ on the ground. These studies explore how the idea of the corridor is contested and negotiated by groups with different stakes – personal, professional or political – in the corridor project under discussion. In 1.4.3, I present research exploring instances in which the corridor has been co-opted by powerful groups, to advance an agenda which does not necessarily best serve ecological or social interests.

1.4.1 Structure and function: Understanding the appeal of corridors and connectivity

In her paper *Constructing Connectivity*, which presents an empirical case study of an attempted corridor project in the Tarangire-Manyara Ecosystem in northern Tanzania, Goldman (2009) posits that the corridor can mean different things to different people – concept, tool, strategy, natural entity – and can appeal as either an effective conduit for the ideals of community-based natural resource management *or* of exclusionary fortress conservation. For Goldman, this discursive breadth and flexibility is a significant part of the corridor’s increasing appeal in conservation, and as such she suggests that the corridor can be conceptualised as a boundary object – an entity, concrete or abstract, which can comfortably accommodate diverse meanings for different people, and which therefore facilitates cooperation between social groups without them having to actually reach consensus (Star, 2010; Star and Griesemer, 1989). In Goldman’s study, conceptualising the corridor as a boundary object helps explain the dynamic between conservationists and resident pastoralists involved in the corridor project, and how they were able to cooperate up to a certain point, before being forced to confront their diverse understanding of what a corridor *was* once an attempt was made to put it into practice. Goldman argues that because corridors are easy to visualise, they are effective at connecting not only fragmented landscapes, but also people, “across disciplines, theories, public and private sectors, science and management” (2009, p. 336).

Wyborn (2015) shifts focus towards conservationists themselves in her study of connectivity conservation in Australia. Using qualitative data including interviews, documentary analysis, literature review and participant observation, Wyborn explores connectivity conservation through the lens of co-production, arguing that the scientific *narrative* of connection, which in Australia hinges on a metaphor of connecting both landscapes and communities, actually

works to *construct* reality, not to merely reflect it. For Wyborn, this explains the disjuncture between connectivity conservation research and connectivity conservation policy and practice, in which policymakers and conservation NGOs continue to endorse connectivity conservation even as the academic community becomes more ambivalent about it (see debates outlined in section 1.2). The narrative of connection is “intuitively appealing”, in the words of one of Wyborn’s respondents, allowing the conservation practitioners in her study to use corridors to pursue a range of objectives which in fact go beyond achieving ecological objectives, to include pragmatic or professional benefits such as facilitating the conservation of private land, or collaboration between stakeholder groups. In this case, these pragmatic and professional benefits of the corridor were at least as important as its purported scientific merit as motivations for the conservation practitioners. Like Goldman, Wyborn too adopts the lens of the boundary object in her analysis of connectivity, using it to explain how diverse approaches to, and motivations for, pursuing connectivity can nonetheless be considered part of a unified approach.

Where Goldman and Wyborn explore corridors and connectivity through their respective case studies, Haila (2002) provides a ‘conceptual genealogy’ – an in-depth historical and philosophical analysis of the *idea* of fragmentation in ecology. Through a comprehensive and critical review of scientific literature since the emergence of the idea in the 1980s, he posits that the notion of fragmentation is a schematic, deriving from island biogeography’s island analogy, and depending on two key assumptions: first, that there is a contrast between natural, island-like habitat fragments and their inhospitable surroundings; and second, that pre-fragmentation conditions were both natural and uniform. For Haila, these dominant assumptions act as an ‘intellectual attractor’, defining the conceptual space in which scientific research in fragmentation can proceed. The issue, he posits, is twofold: first, that this is a simplistic, borderline inaccurate understanding of the composition of ecological landscapes; second, that this simplified understanding of ecological fragmentation suggests predictability and universality where none exist. In other words, the schematic of fragmentation sits at tension with conservation’s complex empirical realities and highly contingent practical demands. Haila points out that these assumptions have been challenged as more empirical research on fragmentation has tested the principles of island biogeography, but that the island metaphor persists nonetheless.

Here we have three studies which, through different methodological approaches and with different primary objects of study, suggest that the interconnected ideas of fragmentation, connectivity and corridors contain conceptual ambiguities which are obscured by a veneer of simplicity and intuitive appeal. The intuitive appeal appears to stem from the tendency – or temptation – to conceive of complex ecological systems in simple, binary terms. Conceiving of complex systems in terms of simplified ‘stories’ has a precedent in conservation which impacts on conservation policy and practice – this is discussed in more detail in sections 2.2.1 and 2.2.2 of the following chapter. For now, in the context of corridors for conservation, I suggest that it is this intuitive appeal that contributes to the problematic slippage between structural (i.e. visible) and functional (i.e. effective) connectivity highlighted by Hess and Fischer (2001), Chetkiewicz et al (2006), Beier and Gregory (2012) and Delattre et al (2018). This tendency can be observed particularly in Goldman’s case study, in which, broadly speaking, the Maasai perspective was that wild animals (in this case zebra and wildebeest) passed through their village without issue, and they did not perceive any existing or future need to create a separation. Conservationists, in contrast, collected data on wildlife movement through the villages to support their case for setting aside part of the area as a ‘formal’ corridor. In other words, for the Maasai, there was already *functional* connectivity in their villages, and so they did not recognise the conservationists’ desire to create *structural* connectivity in the form of separate corridor area. This resonates with Kareiva’s (2006) observation that it is easier to measure structural connectivity through appearance or even tracking wildlife movement, but that such measurements do not always adequately capture or measure functional connectivity, the objective of which can include genetic exchange, encouraging recolonisation, or facilitating escape during times of shock or stress.

1.4.2 Corridors: material contestation and conceptual malleability

In Goldman’s (2009) study, mentioned above, only when the corridor boundary object became materially manifest on the ground in a specific place – when it became ‘strongly structured’ (Star and Griesemer, 1989) – did tension between two stakeholder groups come to the surface. Contestation arose from lack of common understanding of the meaning of the word corridor itself; the collectively-held but ill-defined notion broke apart once it ‘touched down’ on the ground. Crucially, though, the ‘fact’ of the corridor remained stable throughout

the ensuing processes of contestation and resistance. To explain this conceptual resilience, Goldman suggests that, for the corridor ‘fact’ to be destabilised, practitioners would have to *allow* this to happen – namely through exploring and devising contextually-appropriate alternatives to corridors with Maasai pastoralists living in the area. Goldman suggests that as a boundary object – fortified by a ‘standardised package’ (Fujimura, 1992) of widely-accepted conservation tools (e.g. GIS, wildlife tracking technology), methods (modelling, community participation) and ecological theories (island biogeography, metapopulation theory) – the intuitively appealing, transferable and widely (if differentially) understood concept of the corridor remained too appealing for those with influence allow it to be destabilised.

In another Tanzanian example, Bluwstein and Lund (2016) detail how confusion arose from overlapping and contradictory attempts to map and formalise the Selous-Niassa transboundary corridor area⁵, in a process they call ‘territorialisation by conservation’. Their focus is on the ways in which conservation practice, shaped by processes of problem identification and ‘rendering technical’ (after Li, 2007a), establish conservation frontiers and create conditions which both necessitate *and* legitimise continued conservation work. While this is not a study ‘about’ corridors *per se*, Bluwstein and Lund nonetheless hint at how the corridor idea became enmeshed within, and essential to, conservationists’ efforts to secure large-scale conservation in an area where confusion and contestation over borders had been problematic for decades. As the notion of the Selous-Niassa corridor was repeatedly invoked in maps, reports, conversations and memories – what Bluwstein and Lund refer to as ‘debris’ – conservation actors effectively came to view the Selous-Niassa corridor project as “too big to be allowed to fail” (p. 462), even if their efforts at securing large-scale conservation and clarifying borders *were* ostensibly failing. For Bluwstein and Lund this constitutes a “double territorialization”, in which new claims invoked in struggles over territory “eventually become settled in landscapes and minds” (p453). Here we are presented with a similar dynamic to that observed by Goldman (2009): that despite ongoing contestation and confusion, that the area *was a corridor* was never really questioned by conservationists working in the area.

⁵ The Selous-Niassa corridor area covers both Tanzania and Mozambique, but Bluwstein and Lund’s study uses data only from Tanzania.

The studies from Goldman, and Bluwstein and Lund, both explicate attempts to reconstitute landscapes in the name of ecological connectivity. In both instances, the result of these attempts is contestation between (broadly defined) conservationists and local communities. However, the corridor concept emerges in these cases as robust and flexible enough to withstand the messy realities of on-the-ground conservation; partly because of its intuitive appeal and discursive flexibility, and partly because of sustained support from professional conservation actors. In both examples, the authors demonstrate how the projection of ideas, beliefs and desires about corridors onto landscapes result in real-life impacts, with key actors playing a critical role in maintaining the corridor as ‘fact’ in specific sites. Territorialisation can be defined as the spatial expression of efforts to control land, people and resources through material and visual activities – like mapping and boundary-making – which prescribe specific activities within those boundaries (Peluso and Lund, 2011; Vandergeest and Peluso, 1995). For Peluso and Lund, these territorialising activities are “no less than power relations written on the land” (Peluso and Lund, 2011, p. 673). Bluwstein and Lund’s and Goldman’s work in Tanzania demonstrates empirically how the corridor idea has been deployed by professional conservation actors in territorialising efforts of conservation practice to ‘write’ power relations onto land. Bluwstein and Lund hint at the significance of the corridor idea itself when they speak of ‘territorialisation of mind’ among professional conservation actors. However, in order to understand how ‘territorialisation of mind’ connects to material territorialisation efforts through conservation practice, there remains a gap for an in-depth exploration of what professionally-held ideas, beliefs or desires about corridors might be.

1.4.3 Corridors as conduits/space of co-option

Where previous studies have explored the corridor’s *flexibility*, Evans’ (2007) study explores the corridors *versatility* – in this case, how the corridor was co-opted for an agenda of capitalist development in a contentious brownfield development site in Birmingham. Here, the value of the development site as an urban wetland habitat patch was undermined and eventually displaced by the introduction of an alternative conservation framing: the inclusion of an on-site wildlife corridor. This shift in strategic focus away from unique but unusual urban habitat and towards the provision of a bounded and connected space for ‘nature’ effectively freed up most of the site for development, supported by influential stakeholders. Textual and discursive representations of the site from environmental impact assessments repeatedly

juxtaposed 'spoiled' urban environments with the 'high botanical interest' of the site's purported wildlife corridor, rescaling and reframing the value of the site not as an area of conservation importance in itself, but rather as part of a connection between other spaces. Evans briefly discusses the wildlife corridor as a boundary object, acknowledging that this helps us understand how the corridor's discursive flexibility facilitates cooperation between different social groups. Ultimately, however, Evans suggests that the Latourian concept of the quasi-object explicitly positions the corridor as a *hybrid* entity, more fully capturing the multitude of elements – material and discursive, natural and social – contributing to the unfolding of the wildlife corridor in this urban context. In this case, the wildlife corridor quasi-object "operated simultaneously at the discursive, social and material levels to codify the space of [the site] in a certain way" (pp144-145), i.e. to facilitate pursuit of capitalist development.

In another example of the corridor being co-opted to pursue a broadly capitalist agenda, Grandia's (2007) study of the Meso-American Biological Corridor (MBC) discusses how it was reshaped by its encounter with the paradigm of sustainable development, via the World Bank. The intellectual origins of the MBC project can be traced back to the 1992 Earth Summit and the lobbying efforts of five central American environmentalists, who advocated for a project which could address diverse environmental problems and facilitate cooperation across five countries under a broadly Bolivarian vision. However, in a post-1992 context of the advent of sustainable development, the corridor concept was becoming increasingly popular with donors who, according to Grandia, viewed them as "a possible peacemaking panacea to overcome the conflicts between people and parks" (Grandia, 2007, p. 484). The MBC received multiple millions of dollars in support from funding agencies including the World Bank (via the GEF), USAID, GIZ, the EU, UNDP, and private foundations including Ford. The ambitious and complex vision of the conservationists who originally developed the MBC idea, combining cross-border cooperation and cultural sensitivity in a densely populated biodiversity hotspot, was reduced to a simplified corridor model: effectively a market-based environmental agenda, to be employed from the top down, wherein the broader MBC landscape would be reorganised to align with 'green' neoliberalism through carbon trading and other 'ecosystem services'. In other words, the corridor idea became a conduit for the increasingly dominant notion of 'selling nature to save it' (McAfee, 1999).

In Evans' case study the corridor was introduced as a way of maximising the space available for capitalist development, while in Grandia's it was co-opted to channel efforts towards a capitalist mode of conservation. In both instances, the corridor has ultimately served to advance the interests of one group while excluding the concerns of another from the frame of consideration. Grandia closes her paper lamenting the opportunity lost: "Alas, it seems that the rhetoric of corridors was just new jargon for really worn out ways of trying to achieve biodiversity conservation" (p498); the same could be said for Evans' case study. We can only speculate about the kind of alternative conservation practice that could have taken place if the idea of the corridor had not proven so seductive to certain groups; the point is that in Evans' and Grandia's studies, the corridor reoriented people and resources towards the pursuit of a specific kind of spatial organisation – one which does not threaten the status quo, or present particularly politically or ecologically challenging ideas.

1.5 [A research agenda for critical social science on the conservation corridor](#)

The literature reviewed in the sections above has demonstrated, in short, the following: that corridors are often couched in terms of the immutable and natural, presenting a façade of simplicity which obscures the scientific complexity of corridors, how they can support ecosystems, and how this is debated in the scientific literature; that the idea of the corridor possesses a discursive flexibility which is both alluring to conservation practitioners, but potentially problematic when corridors are enacted on the ground; and that corridors can be used by influential conservation stakeholders in the pursuit of a range of objectives not limited to the strictly ecological. Collectively, the literature reviewed from both the natural and social sciences suggest that the corridor is a deceptively complex category: a conceptual container for an array of things – ideas, desires, motivations and assumptions – bundled together discursively into an intuitively appealing package. This helps us understand why the corridor can play out in different ways across very diverse contexts – from locally networked wildlife corridor in urban Birmingham to connections between two national parks in rural Tanzania, a pillar of Australian national conservation policy or a multi-million dollar Central American sustainable development programme – against a background of a general upward trend in visibility of corridor- and connectivity-related research and practice in conservation.

Previous social science research on conservation corridors explores how the corridor's intuitive appeal has facilitated its spread across the global conservation landscape, and touched upon the ways in which the corridor is 'performed' in different geographical contexts. It has also explored conservationists' perspectives on what makes a successful corridor, or why corridors are considered a strategy worth pursuing in conservation. However, gaps remain: for exploring perspectives on corridors in the *abstract* – i.e. what corridors are, and what they can do, generally speaking – as held by professional conservation stakeholders; and for examining the extent to which these abstracted perspectives are shared, echoed, or rejected by other conservation stakeholders working, directly or indirectly, on specific, material corridor projects at different scales. A study which makes connections between these different corridor manifestations, both material and discursive, will enhance understanding of how claims about corridors are deployed by different kinds of people in different contexts, and how these claims are facilitated or constrained by their position within a broader conservation network.

In this thesis, therefore, I build on previous work by exploring the corridor holistically, looking at how it manifests in both discourse *and* practice at different spatial levels, and levels of abstraction, as part of a wider conservation network – of laws and regulations, technological and knowledge-production tools, state-sanctioned planning processes, biophysical landscape configurations, and deeply-entrenched ideas about nature and how it should be managed. I explore how these elements interact with the corridor concept as part of a broader conservation corridor *assemblage*. I conduct this research with stakeholders whose interest in corridors ranges from the professional to the personal, from the abstract to the concrete – and with shades of grey in between – and whose understanding of the corridor is therefore shaped by their literal and figurative proximity to it. However, in adopting the language of the assemblage in my explication of the corridor concept, I also consciously make space for the power of the non-human in my analysis of different manifestations of the conservation corridor. I contain my enquiry within the confines of one nation-state, approaching the corridor as a socially and politically contingent outcome of negotiations taking place at multiple sites, presenting data on these processes as they take place at the national, regional and local levels. Bounding my enquiry in this way will help to address the gap in understanding

of how different perceptions of and visions for conservation corridors articulate with one another across a national conservation landscape.

At the outset, my research was guided by the following broad-based research questions:

- Who are the key stakeholders in corridors for conservation – particularly in terms of corridor identification, implementation and impact – and how are corridors for conservation discursively constructed by these stakeholders?
- What kind of ideas underpin support for (or objection to) corridors for these different groups?
- Do these discursive constructions differ in different locations, at different levels of spatial scale, within a national conservation landscape?
- How do the discursive constructions of corridors shape the production of corridor space?
- What else contributes to how corridor spaces manifest on the ground?
- How do corridors impact on the people who must live with or alongside them when they ‘touch down’ in specific places?

The key research questions that emerged from the (overlapping and iterative) data collection, analysis, and writing up stages to shape this thesis are as follows:

1. How is the corridor concept a) discursively constructed and b) deployed by professional conservation stakeholders in Tanzania, particularly in reference to the conservation corridor’s status as “natural” or otherwise?
2. How does the conservation corridor concept fit into or disrupt Tanzania’s broader wildlife conservation complex, and does the corridor’s status as “natural” or otherwise play a role in this?
3. How does the corridor concept travel through Tanzania’s broader wildlife conservation complex to “touch down” and manifest discursively and/or materially at different scales, and to what extent does the corridor concept resonate with those who must live with (or indeed within) claimed corridor spaces?
4. How does theorising the conservation corridor as an assemblage advance understanding of the dynamics of conservation knowledge production and practice across multiple scales?

Additionally, questions pertaining to the discursive and spatial production of corridors at national, regional and local levels specifically emerged through my data collection and analysis process. These questions are outlined and aligned with empirical chapters in Table 4.1 – Overview of chapters, research questions and data collection methods – in section 4.4 of the methodological chapter, and are reiterated both in the empirical chapters and in the conclusion of this thesis.

This thesis is not a study into whether corridors ‘work’ or not ecologically; the sections above have demonstrated clearly that debates on the efficacy of corridors in a strictly ecological sense, or the utility of the concept of connectivity, are complex and context-specific questions, requiring a knowledge of natural sciences and a set of technical skills beyond the capabilities of this researcher. Rather, this thesis constitutes a contribution to scholarly work within critical conservation social science, which employs various social science approaches and methods to challenge assumptions, interrogates values, and examines power structures that are often taken for granted in conservation knowledge and practice (Bennett et al., 2017a; Massarella et al., 2021). More specifically, this research falls within what Bennet et al term reflexive social science on conservation, which asks critical questions on how conservation interventions are framed and justified (Bennett et al., 2017b). As such, this thesis seeks to understand the provenance, implementation and impact of the corridor as an idea and/or strategy within the context of the global conservation project, in which a multitude of actors are coordinated into agreements and actions, formed within a system of asymmetrical power relations which stretch across great distances, enrolling organisations, governments, livelihoods, knowledge-making practices, financial institutions and more (Brosius, 2010; MacDonald, 2010). These elements are shaped by the kind of diverse knowledge claims discussed in the sections above; knowledge claims are not applied ‘neutrally’ to the blank canvas of the natural world, but enter into it through people with ideas and values, facilitated and constrained by non-human animals as well as inorganic things, interacting in complex and far-reaching networks. The impacts of the global conservation project in all its iterations, on the people, animals and spaces it seeks to govern, are myriad and uneven. Entering into this powerful machine, the corridor, like all spatially-oriented conservation concepts, has the potential to be hugely impactful, and as such warrants a

critical consideration that extends beyond 'pure' ecology. This thesis therefore begins from a recognition of the corridor as an undeniably social phenomenon.

In answering the above questions, I will pay explicit attention to the connections between multiple discursive constructions and material manifestations of the corridor. In doing so this thesis contributes not only to understanding of the corridor in conservation *per se*, but also uses the corridor as a means to explore how different groups think about nature and people, and the interaction between the two, more generally. Hobbs predicted in 1992 that interest in corridors would be unlikely to abate "without hard evidence to show that they are definitely ineffective" (1992, p. 391). This has proven to be remarkably prescient. The aim of this thesis, by addressing the questions above, is to help understand more fully why this should be the case.

1.6 Thesis structure

In the following chapter, I detail my theoretical approach to the questions outlined in section 1.5. Chapter 3 introduces Tanzania as my field site, providing important contextual information on Tanzania in general, and introducing the Kilombero Valley as my regional site of data collection. Chapter 4 sets out my methodology. Chapters 5, 6, 7, 8 and 9 are the empirical chapters. Chapter 10 discusses my research findings, outlining theoretical conclusions and practical implications.

2 Theoretical approach

In this chapter I present theories, concepts and general philosophies which inform my own approach to answering the corridor research questions set out in section 1.5. In section 2.1, I outline the premise of nature as a social construct, and the rationale for adopting this as a central precept in my exploration of the corridor phenomenon in conservation. In section 2.2 I discuss the significance of discourse – including the formation of discourse coalitions, and success stories and fads – in influencing how we understand nature and society, as well as in conservation policy and practice. In section 2.3 I explore the production of conservation space, paying particular attention to the primacy of the protected area as conservation’s ‘territorial fix’. I also discuss cartographic representations of conservation spaces. Section 2.4 begins to establish a rationale for a social science exploration of the conservation corridor space through a political-ecological lens; and section 2.5 explores ‘thinking in networks’ as a thought-provoking and productive way to approach studies of human-environment relations. Section 2.6 is a synthesis of these ideas, sketching out the theoretical apparatus with which I conduct my enquiry into the social life of the corridor for conservation.

2.1 Something made: nature as a social construct

In the introduction to their edited volume *Social nature: theory, practice, and politics*, Castree and Braun (2001) outline three societal conceptualisations of nature that dominate in the west: nature as external (not social); nature as intrinsic (of a fixed and inherent quality); and nature as universal (general and all-encompassing). These overlapping ideas collectively create a powerful and pervasive⁶ taken-for-granted understanding of a magnificent, monolithic nature – one which is complex and multifaceted, but at the same time self-evident and immediately recognisable. The idea that nature can be apprehended and known in and of itself has pervaded western society from popular culture to the development of the ‘scientific’ method (Castree and Braun, 2001; Cronon, 1996).

Scholarship on social nature challenges these assumptions by insisting that nature is, in fact, unavoidably and inescapably social. But what does it mean to claim, as Castree and Braun do, that “nature is something made” (2005, p. 3)? Geographers have proposed that nature is

⁶ In certain parts of the world.

social in three related ways: the way we know it, the way we engage with it, and the way we transform it (Castree, 2001). First, the notion that the ways in which we know nature are unavoidably social rests on the claim that “knowledge of nature is invariably inflected with the biases of the knower/s” (Castree, 2001, p. 10). As such, it follows that there is no singular knowledge about nature, but rather that there are knowledges – plural. This broad rejection of objectivity aligns with feminist, poststructuralist and postcolonial geographies, which argue that knowledge is situated – i.e. that perspectives are contingent on position, and that it is not possible to separate the knowledge claim from the person making it (Castree, 2001; Rocheleau, 2011, 2008). Second, nature is social in that the ways in which people physically interact or engage with it are invariably socially contingent, mediated by their position within society – economically, culturally, or in terms of race, gender, nationality, ability or any other aspect of personal identity – which determines both their needs and their capacities to act upon nature (Castree, 2001; Escobar, 2012). The third way in which Castree suggests that nature is social is in the sense that it is being *remade* in a very real, material sense, at all levels. This idea stems from Marxist and neo-Marxist geographers, who argue that through scientific and technological advances, nature is constantly being enrolled to serve the purposes of capitalist development (Castree, 2001, 1995).

One of the primary concerns of social nature scholarship has been the interrogation and critique of dominant – read: western – conceptualisations of nature, which primarily define nature in terms of the absence of society, and vice versa. This will be discussed in more detail in sections 2.2 and 2.3 below; and for more detailed treatments of how the nature-society dichotomy evolved in parallel with colonial statecraft, particularly in sub-Saharan Africa, see Adams (2004), Anderson and Grove (1989), and Neumann (1998). For now, suffice to say that these ideas about sublime, human-free nature form the foundation upon which mainstream conservation practices have been built – namely, a conservation that has consistently prioritised the formation of legally protected bounded spaces in which charismatic species can thrive free of the constraints of the inherently hostile Anthropos. Already, we can begin to make the connection between this version of mainstream conservation, and Haila’s conceptualisation of the corridor as an ‘intellectual attractor’ founded on an idea of habitat patches as islands in a sea of anthropogenic hostility (section 1.4.1); or with the preoccupation

with ‘formally’ separating village space from corridor space that Goldman observed in conservationists in her study (section 1.4.2).

A major critique of social nature has been that it can be ‘hyperconstructivist’ (Castree and Braun, 2001, p. 16), wilfully denying the physical reality of nature and reducing it to a “a mere projection of social interests” (Demeritt, 2002, p. 768). Such critique does disservice to the breadth of work that engages with the precepts of social nature without resorting to the unsatisfying claim that nature is ‘just’ an idea. For example, political ecology’s poststructural turn saw it paying closer attention to truth-claims about nature and who is making them, and how partial or partisan understandings of material environments enter into uneven power dynamics – but without disavowing or dismissing the materiality of ecological elements and processes (Castree and Braun, 2005; Escobar, 1999; Peet et al., 2011; Robbins, 2012). In science and technology studies (STS), Yearley (2008) argues that STS “affords key insight into the status of “the natural” in advanced modernity” (Yearley, 2008, p. 921), and Jasanoff states clearly her belief that “we gain explanatory power by thinking of natural and social orders as being produced together” (Jasanoff, 2004a, p2)⁷.

In adapting a lens of social nature, therefore, I do not adopt a dogmatic constructivism which denies the existence of a biophysical nature ‘out there’. Rather, I suggest after Escobar that “nature is simultaneously real, collective, and discursive” (Escobar, 1999, p. 1), and that nature should therefore be understood as a “co-construction among humans and nonhumans” (Escobar, 2012, p. 207). Insisting that nature is in both discourse and practice “socially made, not ontologically given” (Castree, 2003, p. 204), opens us up to challenging questions about things we take for granted, who or what is important in constructing the world we inhabit, and how assumptions, such as the conflation of the natural with the good, or the idea that nature can be objectively known and claims about nature are therefore politically ‘neutral’, can have real-world impacts. In short, in this thesis, accepting nature as unavoidably and inherently social is not an end but rather a beginning – a conceptual key which allows me to access the liminal space between the biophysical world and the ways in which we come to know and act upon it. This is the space in which conservation is practiced.

⁷ Section 2.4 discusses both political ecology and STS in more detail.

Once we accept the possibility that nature is social, we can begin to apply this knowledge in an endeavour to understand and contextualise knowledge on conservation corridors, and how this is put into conservation practice. The following sections speak to some themes that emerge when we think of the corridor phenomenon in conservation through the lens of social nature, through literatures on discourses, spaces, and representations of nature.

2.2 The nature of truth and the truth of nature: discourse in conservation

Poststructuralist thought posits that reality cannot be accessed or understood untarnished by the filter of human experience, and that the claims that we make about reality are in fact part of what *constitutes* that reality. This line of thinking has influenced human geography to critically consider how claims about the realities of nature and society are made – not only what is being said, but also who is saying it. As such, analysis of discourse has become a primary concern within poststructuralist thinking. Discourse should not be conflated with the totality of what is said or the language that is used to say it – though this is undeniably important. Discourse encompasses other forms of representation like stories, images, and terminology (Robbins, 2012). Most importantly, discourse determines what is knowable, sayable and doable. Hajer defines discourse as “a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to social realities”, but without necessarily forming “one coherent whole” (1995a, pp. 44–45). Discourses can be thought of as collectively constituted clusters of shared meaning, which circulate through global communities via multiple channels, and create the conditions from which ‘truth’ can emerge (Adger et al., 2001; Hajer, 1995b; Rangan and Kull, 2008; Svarstad, 2002). By shaping what is known and knowable, discourses also shape what is done and doable (Adger et al., 2001; Dunn, 2009). Discourses therefore extend *beyond* the individual/group or the claim(s) they are making, forming as outcomes of the dynamic, power-laden relationship between the two.

As alluded to above, scholars of social nature have drawn from this in their interrogation of what constitutes the ‘natural’, suggesting that nature too is an “effect of discursive practices” (Braun and Wainwright, 2001, p. 46). This section explores some discursive aspects of the social construction of nature, particularly in relation to established narratives on nature,

power as both a determinant and an effect of discourses on nature, and how this connects to conservation practice.

2.2.1 Narratives on nature

Narratives are a way of conceptualising what Adger et al (2001, p. 685) refer to as the 'expressive means' of discourse – i.e. the ways in which the messages of a discourse are communicated. They emphasise two elements of narratives: an implied chronological order, and the invocation of a 'cast' of actors (ibid). After Roe (1991), they draw attention to: a) how conservation narratives have political implications in that they can be used to justify particular 'solutions' to problems; and b) the resilience of narratives even in the face of evidence that appears to refute them. Similar to Adger *et al*'s conceptualisation of narratives, Hajer (1995b) develops the concept of storylines. Like narratives, Hajer's storylines reduce complexity, hiding uncertainty and facilitating communication. As storylines become absorbed into discourses, they can *evoke* assumptions and ideas about an issue of concern without having to actually name them, allowing (sometimes contradictory) elements of a discourse to hang together without necessarily forming a coherent whole (ibid).

Hajer introduces the idea of storylines as key to the formation and maintenance of discourse coalitions (1995b, p. 62). Discourse coalitions form when from the discourse there emerges one or more unifying storylines around which a group, like conservationists, can gather, with some level of consensus or at least acquiescence (ibid). Based on the literature reviewed in chapter 1 of this thesis, in the case of corridors, there is an implied unifying storyline that nature requires protection from society, nature is increasingly fragmented, and corridors are a way to create the necessary connectivity to redress that, allowing non-human life to move between high-value conservation areas. As a "shallow and ambiguous" discursive practice which facilitates "the reduction of the discursive complexity of a problem" (Hajer, 1995, p. 62), the unifying storyline invokes other narrative elements – appeals to history or pre-history, the ethics of the precautionary principle, corridors as supporting existing protected areas – without having to name them. The storyline therefore acts as an effective rallying point for a discourse coalition, and without any need to define precisely what a corridor is.

The point here is that things we tell ourselves about nature are never neutral or objective reflections of reality released into a political or cultural vacuum. They are not mere descriptions of the world, but constitutive of it, setting the terms by which people can communicate with one another, creating the spaces (intellectual and literal) in which they can do so, and determining whether ideas will be taken seriously or rejected. Forsyth defines an environmental narrative as “a well-known and convenient explanation of environmental processes that is widely accepted as truth, but that contains important simplifications and errors” (2011, p. 35). In conservation, where there is a lot of uncertainty, planners, decision-makers and policy-makers are often drawn to simplicity as a way of engendering a sense of certainty (Adams and Hulme, 2001). Fairhead and Leach’s (1996) exposition on ‘desertification’ in West Africa is a famous example of the unravelling of a dominant narrative on conservation; using a combination of aerial data, documentary evidence and oral recollections, they uncover a long history of dynamism in forest cover gain and loss in Guinea’s Kissidougou Prefecture. Their research undermines the simplistic and hegemonic narrative of anthropogenically-driven deforestation and an ever-advancing desert frontier – a “Foucauldian discourse of degradation” (p278) which, they argue, is based more on western imagination than on-the-ground African reality. Other empirical examples of the power of specific narratives in conservation include Benjaminsen et al’s (2009) case study on human elephant conflict, in which a dominant narrative of overgrazing in protected areas obscured an alternative narrative of inadequate service provision in pastoralist villages in Tanzania; Svarstad and Benjaminsen’s (2017) observation of the REDD ‘success story’ at the 2007 conference on climate change; and Tumusiime and Svarstad’s (2011) exploration of competing narratives about gorilla conservation in Bwindi Impenetrable National Park, Uganda. Interrogating environmental narratives in this way highlights the pitfalls of accepting dominant and/or simplistic narratives at face value.

The tendency towards simplistic narratives as a way of avoiding uncertainty can lead to path dependence in conservation. Path dependence describes the complex process by which some conservation narratives become so deeply entrenched in the minds of key actors that they become difficult to dislodge – even in the face of evidence to show that they are untrue or unhelpful (Adams, 2010). Often, the only way to overturn a dominant narrative is with a different, more convincing counternarrative (Adams, 2010, after Roe 1991).

Narratives are not limited to explanations of specific environmental processes, however, but are also key to sustaining the more pervasive ideas of external, intrinsic and universal nature discussed in section 2.1 above. For example, the (western) understanding of what constitutes 'wilderness' is based on a narrative of empty landscapes and sublime nature that effaces its own roots in romanticism, myths of virginity and the violence of American statecraft, in what Cronon refers to as a "flight from history" (1996, p. 16). The idea of wilderness is one of the most powerful and enduring narratives on nature, closely related to the development of the categories of biodiversity, endangered species and the national park⁸, embodying the "dualistic vision in which the human is entirely outside the natural" (Cronon, 1996, p. 11). Once discourses are established and begin to circulate through e.g. media and broad-based understanding (common sense), they become hard to 'unthink', "since it is difficult to imagine outside the categories already at your disposal" (Peet et al., 2011, p. 35).

Barua makes more explicit the connection between conservation discourses and lay/public understanding in his exploration of 'mobilising metaphors' in conservation discourse. He argues that ostensibly unproblematic concepts such as keystone, flagship and umbrella species are in fact metaphors which "build crucial links between scientific knowledge, conservation action and public acceptance of such action" (2011, p. 1439). For Barua, the problem is that these metaphors work to disguise ecological complexity, and can refocus conservation policy and practice on maintaining the terms of the metaphor, rather than on delivering conservation outcomes. This resonates with the work of e.g. Haila (2002), who argues that the idea of connectivity in conservation acts as an 'intellectual attractor' (section 1.4.1), and Kareiva's assertion that the idea of connectivity is a metaphor which has captured the imagination of conservation biologists (section 1.2). It is apposite to consider how the appealing metaphor of connectivity might then travel through the broader conservation community to be applied on the ground.

⁸ Discussed in more detail in section 2.3 below.

2.2.2 Success stories and conservation fads

Analysis of discursive practices in conservation has complicated our understanding of success in conservation. Büscher (2014), for example, engages political economy value theory to position success as a “knowledge commodity” in his exploration of a South African payment for ecosystem services project. He argues that despite never progressing beyond the feasibility stage, the project is ‘sold’ as a success story by key actors, who must circulate positive interpretations of the project among broader societal stakeholders – in this example within the realms of finance and donors, academic research, and policy – in order to generate ‘buy-in’ for the tenets of the project, and by extension to maximise chances of securing funding, remuneration, contracts etc into the future. In a similar vein, in their paper ‘Promising Change, Delivering Continuity’, Lund et al (2017) posit that the promise of change is a “discursive commodity” which circulates in conservation and is used to gain access to financial resources, explaining the persistence of REDD+ at a Tanzanian project site despite its failure to achieve stated objectives. Lund et al (2017) argue, therefore, that fads emerge from *systemic* properties of the conservation and development industries, which, in adopting (or being forced to adopt) the logics of the broader capitalist political economy, compel conservation actors to engage in a continuous presentation of success as the primary way to secure the material resources necessary to continue their work. This is consistent with Igoe and Brockington’s (2007) contention that the influence of neoliberal thinking within the global conservation complex has expanded ‘win-win’ conservation-and-development models to enclose benefits corporations and consumers too, in what describe as win to the power of 7, or win⁷.

Taking a different approach, in their short editorial in *Conservation Biology*, Redford et al (2013) argue that conservation as a whole is susceptible to fads because truly positive outcomes in conservation are difficult both to achieve and to measure. It is for this reason, they argue, that conservation sees significant generation of ‘new’ approaches which are not in fact truly novel, but rather “a repackaging of an old approach, which may or may not have had some beneficial effect, into something perceived as new” (ibid, p438). Redford et al argue that conservation practitioners should become more explicitly reflexive on the culture(s) of conservation practice, and more amenable to learning from past policy attempts.

Collectively, through these very different theoretical approaches, this research acts as something of a warning about promises of success and ‘new’ conservation approaches: it suggests that conservation success can be less a function of results on the ground than a discursive performance, sustaining certain professional practices and subsuming counter-claims about what is actually happening. This work helps to explain a general disjuncture between rhetoric and reality observed in both conservation and development projects (Benjaminsen and Svarstad, 2010; Escobar, 2012; Fletcher, 2013). It also helps explain why failure to achieve stated objectives does *not* necessarily displace specific conservation strategies. Once again, the relationship between conservation practice and stories *about* conservation practice is shown to be highly complex and politicised.

2.3 Nature, conservation and space

Section 2.1 and section 2.2 have established that the things we say, think and do about nature are all inextricably linked, and that the dynamic between these three things shapes both conservation knowledge and practice. One of the main ways in which this manifests in conservation practice is through the production of space, with the establishment and maintenance of protected areas a mainstay of the modern global conservation project. In sections 2.3.1 – 2.3.4 I discuss the historical, social and cultural production of space in relation to conservation, as well as the social impacts of protected areas. In section 2.3.5 I explore the role of cartography in conservation practice and the production of conservation space. 2.3.6 highlights some issues of scale and bordering pertaining to conservation space more generally, and corridors specifically. The themes discussed in this section are pertinent to an exploration of the corridor as a ‘new’, proliferating and necessarily spatial conservation strategy; they highlight key considerations for any deep-dive into the spatial imaginary of the conservation corridor.

2.3.1 The production of space

Space tends to be considered “absolute and infinite as well as empty and a priori in status” (Casey, 1996, p. 10), an “article of scientific faith” (ibid) which should be apprehended objectively and understood quantitatively within a Newtonian-Cartesian tradition (Harvey, 2006). As such, the dominant (though not necessarily conscious) understanding of space tends to reduce it to “a dimension for the display/representation of different moments in

time” (Massey, 2005, p. 7). Lefebvre (1991) posits, however, that space is not merely a geographical backdrop or a container for activity, but is in fact *produced* by the activity – physical, mental and social – that takes place within it (Rangan and Kull, 2008). Massey makes a similar argument, stating that space is always under construction, from the global to the miniscule, by the interrelations that come from never-ending social and material practice (Massey, 2005). In attending to space as socially produced, we can begin to make connections between spaces ‘for’ nature and the social production of nature. This can inform our understanding of the corridor as a decidedly spatial phenomenon in conservation, by compelling us to think of the ways in which corridor spaces might be produced, and how these spaces in turn are co-constitutive of how we understand nature.

2.3.2 The protected area

As alluded to in section 2.2.1 above, in his essay *The Trouble with Wilderness*, Cronon argues that the natural and the social are defined in terms of their mutual exclusivity – that wilderness can be only where civilisation is not. He posits, however, that wilderness is also an invention of civilisation itself, one which “hides its unnaturalness behind a mask that is all the more beguiling because it seems so natural” (1996, p. 7). In conservation practice, the idea of wilderness finds its most obvious expression in the national park – an idea from the United States that has been exported globally. The ‘beguiling mask’ of wilderness hides the historical and political context of the national park’s emergence – a combination of romanticism’s formulation of sublime nature (Cronon, 1996; Lorimer, 2015), colonialism’s overarching objective of physical domination (Baker et al., 2019; Harvey, 2011), trophy hunting practices (Lorimer, 2015), and a broadly defined western philosophy of nature and society as mutually exclusive (Haila, 1999; Lorimer, 2015). The national park has become the physical expression of a preoccupation with a “wilderness ideal” (Neumann, 2005, p. 139), and a ‘territorial fix’ for conservation. Lorimer posits that this conceptualisation of wildlife territories as discrete spaces surrounded by an inherently threatening matrix of ‘developed’ land was also energised by the theory island biogeography which, as was discussed in section 1.1 above, also served as the catalyst for the development of the wildlife corridor.

From the 1970s to the 1990s, there was a huge increase in protected areas, most of which occurred in the economically disadvantaged and predominantly rural countries of the global

south (Neumann, 2005). This trajectory occurred in parallel with the discursive development of 'biodiversity' as a discrete category, emerging alongside the maturation of conservation biology as a field of enquiry (Neumann, 2005). At the 1992 Earth Summit in Rio, biodiversity loss was firmly established as a global problem – and *in situ* conservation, in the form of protected areas, as the solution (Lorimer, 2015; Neumann, 2005). The territorial solution to biodiversity loss came to dominate conservation in the 20th century (Adams, 2004). Given the recent achievement of Aichi Target 11 to protect 17% of global land in the name of conservation (Greenfield, 2021), proposals for a Global Deal for Nature which would formally protect 30% of the terrestrial realm (Dinerstein et al., 2019), and calls from prominent scientists to give 50% of the world's surface to biodiversity protection (Hance, 2016), this trend shows no signs of slowing in the 21st century.

This is not to suggest that the archetypal 'fortress' national park is the only category of protected area. The International Union for Conservation of Nature (IUCN) names seven protected area management categories, ranging from 'strict nature reserve' to 'protected area with sustainable use of natural resources', and there are many forms of protected areas across the globe which span these categories. Different kind of protected areas have also emerged in response to paradigm shifts in the global conservation complex – for example, the 1990s saw a shift from highly exclusionary 'fortress' conservation towards spaces which fall under the broad rubric of community-based conservation (Adams, 2004; Noe, 2014). Buffer zones, indigenous reserves, village forest reserves: these are 'nature-society hybrids' (Zimmerer, 2000), intended to address the needs of both biodiversity and people in a way that exclusionary national parks, it is argued, cannot. The logic underpinning these 'hybridised' protected areas is based on three assumptions: that it is necessary to directly involve local communities in conservation management and benefit sharing; that conservation activities can serve both conservation and development objectives; and that markets and privatised property tenure rights are needed to incentivise biodiversity conservation (Neumann, 2005, p. 139). However, while different kinds of protected area may have emerged according to legal contexts and broader trends in conservation and development, the core principle of setting aside dedicated and formally protected spaces for nature is largely unchanged (Adams, 2004). In the face of a biodiversity crisis, the notion of

protected areas as the “primary containers of the world’s biodiversity” (Neumann, 2005, p. 119) still dominates.

2.3.3 The territorial fix as time management

In line with the mutual exclusivity of nature and society that epitomises the wilderness ideal, there is a strong implication that protecting wilderness in discrete patches means to arrest time within the boundaries that have been drawn (Lorimer, 2015; Whatmore, 2002). While ecologists are fully aware of the dynamism and constant change taking place within natural systems, the concept of the protected area as a discrete and bounded natural space, and the different laws and regulations that determine what kind of activity can take place inside and outside the boundaries of protected areas, strongly implies a sense of stasis, or capturing and stabilising the space in line with a selected historical baseline – or returning to it, in the case of ecological restoration. In other words, ecologists may understand that nature is dynamic and constantly-changing, but protected areas themselves can often present as spaces of “nature without a past” (Whatmore, 2002), in which preservation presents as “most commonly accomplished by a physical and textual exclusion of sedimented layers of social activity and actors, past and present” (Katz, 2005, p. 53). Protected areas are therefore both reflections *and* projections of notions of desirable and/or appropriate nature, as determined by (some parts of) society (Harris and Hazen, 2005) – and an implication of pre-history, or even a-history, is deeply embedded within that desirability.

This tendency towards ahistoricism also gave rise to the idea that certain kinds of people could, in fact, live harmoniously with nature. Drawing from Rousseau’s idea of the ‘noble savage’, Kent Redford wrote in 1991 of the ‘ecological noble savage’ to describe the “idealized European vision of the inhabitants of the New World” (1991, n.p.). The idea of the ‘ecological noble savage’ connotes those whose needs and pursuits are perceived to be sufficiently ‘primitive’ that they can live “in “balance” with their environment” (ibid, n.p.). An example of this is the Maasai people of northern Tanzania, who were perceived by settler-colonial ‘preservationists’ to be “closer to nature than to civilization” (Neumann, 2003, p. 248). This notion of the Maasai as ‘natural’ humans was part of the broader processes of the *production* of nature that were inextricably linked to settler-colonial statecraft; but when the Maasai and other tribal groups failed to live up to the expectation projected onto them and unrest over

land rights grew, the ‘solution’ proposed by preservationists became segregation, until a park manager finally declared that “Humans and a national park cannot exist together” (Neumann, 2003, p. 250). Here we have an example of how the ideas about nature project onto landscapes also become ideas about people – in this case sorting them into categories of those who are deemed to be sufficiently un(der)developed, therefore aligning with an ahistoric, and indeed apolitical, perspective on what kind of people are unthreatening to nature. In establishing and attempting to preserve spaces of “nature without a past” (Whatmore, 2002), we also give rise to the notion of people without a past – environmental subjects who are denied both affirmation of their history, and autonomy over their future.

2.3.4 Social impacts of protected areas

Katz argues that the idea of preservation is “pregnant with Malthusian assumption” (Katz, 2005, p. 54). Managing space by creating “natural set-asides” (Katz, 2005, p. 47) also has implications in the areas that are *not* set aside. If the aim within protected areas is to “purify space and stabilize time” (Lorimer, 2015, p. 163) – or, at least, to present an impression thereof – then by extension the visible elements of development should take place elsewhere. A biogeography which depends on the segregation of natural and non-natural activities has, therefore, often required the economic and physical displacement of people. As a result, protected areas have often generated negative social impacts. Individuals, families and whole communities have been economically and/or physically displaced in the name of preserving the socially constructed notion of wilderness, enclosing former commons and denying populations access to natural resources depended on for livelihoods (Anderson and Grove, 1989; Brockington and Igoe, 2006, 2006; Neumann, 2005). In general, the benefits and burdens of protected areas are not distributed evenly (Brockington and Wilkie, 2015).

A systematic review of research on protected areas suggests that protected areas which explicitly integrate local people as stakeholders – rather than excluding them in pursuit of protection in the strictest sense – do tend to more effectively deliver joint outcomes on both biological conservation and socioeconomic development (Oldekop et al., 2016). However, this does not always play out in practice. Research shows that areas under community-based conservation, which ostensibly integrate both conservation and development objectives, can also lead to physical and economic displacement, particularly for rural communities in the

global south. Examples from Tanzania show how the country's flagship model for community based conservation, the Wildlife Management Area, can be co-opted by neopatrimonial state organisations or powerful NGOs, ultimately leading to communities being excluded from decision-making about the very land they have given up in the name of conservation (Benjaminsen et al., 2013; Bluwstein et al., 2018; Igoe, 2007). At the same time, CBC projects are frequently shrouded in a discursive cloud of the language of participation, integration and sustainable development, belying the experiences of local people on the ground. This is another example of the disjuncture between conservation rhetoric and reality, as alluded to in section 2.2.2.

In short, protected areas are spaces are laden with normative projections, not only about nature but also, unavoidably, about people: how their needs should be met, what their needs should be, what form their relationship with nature should take, and how it should be managed. The preoccupation with placing more and more of the terrestrial realm under formal protection for biodiversity will entail social as well as ecological effects, and is potentially dangerous. In this vein, corridors should be considered as having the same vulnerabilities, or potential for pitfalls, that all protected areas do.

2.3.5 Representing time and space: cartography in conservation

2.3.5.1 *Maps as political*

The foundations for a modern understanding of cartography emerged from Enlightenment thinking, in which 'accurate' maps became tools for the rational ordering of space and time, as well as tools for constructing an Enlightenment vision of how the world should be organised (Harvey, 2011). As such, for people embedded within the dominant cultural contexts of the global north, maps tend to be accepted as objective visualisations capturing a neutral 'view from nowhere': reflections of the Newtonian-Cartesian scientific article of absolute space discussed in section 2.3.1, but imbued with useful information. The four types of maps catalogued by Rocheleau – topographic, thematic, cadastral and political – share a "reduction of the multidimensional realities to two-dimensional surfaces" (Rocheleau, 2005, p. 332). Maps, as abstracted representations of human experience, are still positioned as accurate or at least appropriate reflections of material realities, and are thus part of what constitutes our experience the world (Harvey, 2006). By extension, they play a critical role in

the discursive construction of nature and production of space discussed in sections 2.2 and 2.3.

Mapping inevitably involves a process of selection – what to include and exclude, what scale to use – and this selection is shaped by socially-determined objectives (Scott, 1998; Zimmerer and Bassett, 2003). Vivan discusses the role of the ‘Western map’ in the representation and construction of African territory in literary imagination, arguing that maps, like narratives, adopt “fictional techniques and a strategy of veiling/unveiling” (2000, p. 50). Harley (1989) deconstructs the map in the Foucauldian post-modern tradition, arguing that maps, as an element within a broader body of discourse, are part of what makes knowledge *possible*. In *Seeing like a state*, Scott explicitly positions maps as tools of political control (1998). For Scott, maps can be understood as tools of *simplification and abstraction*, pursued as part of a general effort to eliminate uncertainty or, as he conceptualises it, to increase *legibility* (ibid). Drawing from empirical examples from both social and natural contexts, Scott argues that administrators, in their pursuit of legibility, would have neither the capacity nor the desire to capture the complex realities of either social or natural systems. In short, mapping is not neutral, but an unavoidably political process, and maps themselves are both discursive objects and arbiters of power. If we accept that mapping is, therefore, a deeply political act, we come to ask questions about who produces maps, why they produce them, and what impacts they can have.

2.3.5.2 *Maps in conservation*

Given the centrality of the bounding and management of space in conservation practice, the idea of mapping as a productive and political act has been influential in critical social science on conservation. Echoing Scott and Harley above, Rocheleau (2005) argues that mapping is as often aiming to control land, resources and people in spaces, as it is to represent those things; while Corson et al (2014) argue that mapping of protected areas often obscures empirical complexity. Spierenburg and Wels describe environmental mapping as “usually highly politically aggressive”, generating a sense of urgency with regard to what they are mapping, and justifying the appropriation of space for conservation (2006, p. 302).

In Madagascar, Corson (2011) describes how the mapping of boundaries of new protected areas, based solely on properties of biodiversity and excluding socioeconomic data, was integral to processes of state territorialisation by stealth. Similarly, in their study of territorialisation by conservation in the Selous-Niassa Corridor (discussed in section 1.4.2), Bluwstein and Lund (2016) show how even maps which are contested by various parties, or which contradict other maps, can nonetheless form part of the ‘debris’ of conservation which serves to legitimise conservation practice, legitimise further work, and help to establish ‘truth’ about the landscape in question. Maps can also reinforce protected areas’ tendencies to “overwrite human presence in the landscape and efface histories” (Brosius, 2010, p. 318). Hazen and Harris argue that mapmakers might be more explicit in which conservation goals are being prioritised in the production of maps, drawing attention to decision-making around inclusions and exclusions, and that this would “help counter the false impression that all elements of a system can be preserved equally well under the [protected area] banner” (2007, p. 284).

Maps, as a scientifically- and state-sanctioned method of representation, can also be appropriated to ‘legitimise’ customary claims to natural forest resources (Peluso, 1995). However, Rocheleau (2005) argues that ‘using the master’s tools’ in this way carries risk – of exposure, and possibly appropriation, of the resource(s) in question. In short, maps effectively “make the local situation legible to an outsider” (Scott, 1998, p. 45), and this is potentially risky in conservation, where there is an imbalance of power between different stakeholder groups, and where the resource in question is ‘valued’ differently by those different groups.

2.3.5.3 The role of maps in producing conservation space

The point here is to emphasise that maps are political objects, they come into being in political worlds, they have an impact when they do so, and it is difficult to know what that impact will be. The singular power of the map in conservation is such that Harris and Hazen (2005) suggest that it should be understood in terms of both human and more-than-human power. In other words, they suggest that maps in conservation have a power of their own *beyond* how they are intentionally used by people. One element of this unique power is the influence of what they call ‘mappability’ in conservation. ‘Mappability’ captures the idea that the concepts, practices, areas and things that most readily lend themselves to being mapped are

those that are most likely to be mapped, and that as such, we can reasonably claim that maps exert their own influence as a node within the conservation assemblage⁹ (ibid). The emergence of spatial technology like GIS influences this too, contributing to the reliance on conservation's 'territorial fix' through the introduction of a legitimate or formal 'scientific' tool (Harris and Hazen, 2005). Maps also imply a sense of stasis, with Harris and Hazen suggesting that they "provide static snapshots of associations between ecosystem needs, species, and specific territories, ignoring the tremendous flux and dynamism in natural systems" (2005, p. 113), contributing to the potentially problematic implication of conservation as 'time management' discussed in section 2.3.3. Maps, in short, are an important element of nature discourse and conservation practice, and by extension the social construction of nature.

2.3.6 Contact zones: borders and scale in conservation spaces

Setting aside discrete and bounded spaces of protected areas necessitates making some kind of border or boundary. Borders can be determined and designated in multiple ways, and are a key component in the production of space discussed in section 2.3 above. Borders in conservation come in multiple forms, and the form they take has an impact on how the space 'within' is perceived and apprehended. Spierenburg and Wels (2006), in their research on mapping and fencing for conservation in Southern Africa, show how erecting hard fencing, intended to protect wildlife from outsiders, can also have negative impacts on animals by limiting their mobility. They also impact on the local communities 'on the other side' of the fence by denying them access to natural resources, and represent symbolic division, generating resentment (ibid).

Where there is no 'hard' infrastructure to physically stop people from crossing a line, the bordering processes around protected areas are experienced quite differently, but the divide is not necessarily 'weaker' for not being marked out with fenceposts or wires. In Tanzania, the lack of hard infrastructure surrounding protected areas is often proffered as a reflection of Tanzania's 'true' wilderness status – but there is nonetheless a constant level of social management that takes place within those administrative borders. One way of bordering can even be through other kinds of protected area spaces. For example, buffer zones are intended

⁹ Assemblage is discussed in section 2.5 'Thinking in networks'

to act as a cushion between the 'core' protected area and the surrounding matrix (Jongman, 2004). These nature-society hybrid spaces (Zimmerer, 2000) seem to acknowledge that it is possible in *some* spaces to "soften the divide" between natural and social space (Hazen and Harris, 2007). In all cases, regardless of how it is done, the aim creating a border is to create a divide (Noe, 2010). Transgression of those divides can represent resistance – 'weapons of the weak' (Scott, 1985), which over time have transformative impact on the landscape in question (see e.g. Li, 2007a).

Bordering also necessarily entails the question of scale. The problems of scale in geographical scholarship, and in political ecology in particular, are discussed again briefly in section 2.4.4. For this section, however, we can think of scale in conservation as a process of decision-making. Zimmerer claims that scaling is a process which generally involves the spatial fixing of areas, or 'zone-type units', selected on the basis of some defining land use(s) or ecological trait(s), which are then treated as homogenous. The issue, when it comes to scale in ecology, is that the ecological processes under observation change depending on the spatial scale at which they are being observed, and as such, "[one's] choice of scale therefore necessarily implies a choice of relevant processes" (Sayre, 2005, p. 279). These choices are not, generally speaking, made obvious in our encounters with protected areas – but they ultimately boil down to a question of what is kept 'in' and what is kept 'out'. The process of scale-selection in conservation is, of course, not determined solely by ecological criteria: it is the result of both ecological *and* social decision-making processes. Often, though, administrative (political) and ecological borders and scales clash, and protected areas that are established often do not satisfy either particularly well (Daniels and Bassett, 2002; Zimmerer and Bassett, 2003).

Depending on how corridors are 'done' on the ground as a conservation strategy, they may encompass questions of bordering and scale. Because of their tendency towards linearity, corridors would generally have a higher 'contact zone' between corridor and non-corridor space than for more traditional protected areas as 'patches' – or islands. With a higher 'contact zone', there is more scope for people to impact on wildlife and vice versa – the most obvious manifestation of this being human-wildlife conflict. In addition, decisions over bordering – e.g. whether to use 'hard' boundaries like fencing, or what kind of activities might

be permitted within corridor spaces – have implications for the mobility of both wildlife and people who occupy the landscape in question.

2.4 Political ecology

Sections 2.1, 2.2 and 2.3 above have outlined themes that are relevant to an exploration of a new conservation space as a social phenomenon, and how we might bring analyses of discourse and space into articulation with one another in a study which examines the corridor as a social – or socio-natural – phenomenon. This section discusses political ecology as a way of approaching the social concerns of conservation practice. It engages particularly with political ecology's 'discursive turn'.

2.4.1 What is political ecology

Political ecology emerged from various sub-disciplines of geographic enquiry concerned with interaction between people and nature, including cultural ecology, or hazards/disaster studies, aligning with concerns from 'peasant studies', and a renewed interest in Marxist thought within the social sciences more broadly (Robbins, 2012; Watts and Peet, 2004). Since emerging in the mid-1970s, political ecology has burgeoned into "a large but by no means coherent field" (Castree and Braun, 2005, p. 11). While political ecology has seen several epistemological shifts and been the subject of much scholarly debate, one contention that has remained at the core of all political-ecological work is that "politics and environment are everywhere thoroughly interconnected" (Bryant, 1998).

Political ecology "seeks to understand the complex relations between Nature and Society through careful analysis of social forms of access and control over resources" (Watts and Peet, 2004, p. 3). This places power at the centre of any political-ecological work, and distinguishes it from what we might think of as 'apolitical' ecology. Political ecology's original theorisations on power were based on its foundation as "the concerns of ecology and a broadly defined political economy" (Blaikie and Brookfield, 1987, p. 17). The 'broadly defined political economy' referred to a Marxist perspective on class-based oppression, operating at a global scale, and driven by capitalism. The schematic used to explore this power structure was most famously epitomised in the 'chain of explanation' approach (ibid), which involved examining

connections between four scales: the individual land manager, his (sic) local community, the state, and the world economy (Sayre, 2015).

While the first iteration of political ecology was instrumental in challenging the dominant neo-Malthusian thinking in mainstream environmental analysis, it has been critiqued for its preoccupation with poverty and land management in the global south, theorising power almost exclusively as a function of capitalist global system, undertheorising or reducing the agency of the land manager/peasant, treatment of the state as a monolithic entity, failure to address gendered or other intersectional differences in access to and control over resources, and an uncritical engagement with scale and space (Robbins, 2012; Watts and Peet, 2004; Watts and Scales, 2015; Zimmerer and Bassett, 2003).

A growing concern with knowledge on human-environment interactions, and on how to connect struggles over *meaning* with struggles over the *material*, pushed political ecology towards a discursive or poststructural turn in the 1990s, bringing a new theoretical angle to those political ecologists for whom the kind of theorisation of power found in 'classic' works of political ecology was insufficient (Neumann, 2005; Watts and Peet, 2004). While the many and multifaceted applications of post-structural thought evade simple definition, in broad terms poststructuralism emerged to counter the core tenets of structuralism: where structuralism positioned power as a system or structure existing outside of individuals and institutions, post-structuralism emphasised the changeable, fluid and *dispersed* nature of power, as well as the subjective nature of 'meaning', and rejected the notion of universal, essential or intrinsic meaning or rules (Castree et al., 2013). As such, poststructuralism took language – its use and application in meaning- and world-making – as a key object of enquiry. Foucault's central thesis – that it is the power-laden interaction of discourse (how things are represented) and practice (how things are done) that establishes 'truth', and that truth is therefore an effect of power – was particularly influential in political ecology's poststructural turn (Robbins, 2012). The influence of poststructuralist thought allowed political ecologists to move beyond class-based narratives of structural power (Bryant, 2001), and expanded the conceptualisation of the 'political' in political ecology beyond politicians and the apparatus of the state, to also include processes of the social construction of identities and ideas

(Neumann, 2005). This Foucauldian post-structural turn in political ecology dovetails with the ideas on social nature and discourse explored in sections 2.1 and 2.2 respectively, which together encapsulate the idea that discourses on nature make nature intelligible to people, and in turn determine practice on nature (Braun and Wainwright, 2001).

2.4.2 Political ecologies of conservation

Conservation is an organised political project, in which a multitude of actors are coordinated into agreements and actions, formed within a system of asymmetrical power relations (MacDonald, 2010). Many of the practical activities emerging from this system are expressed through conservation organisations; in this way, such organisations can promote their own ideological perspectives (ibid). These ideological perspectives are not autonomously or exclusively determined by those organisations; rather, they are products of their interactions with various stakeholders or partners – individuals, governments, or other organisations – taking place against broader political contexts (ibid). In short, the most visible conservation activities are not politically-neutral applied expressions of conservation science, but are products of the interaction of people and ideas, within a set of socially- and politically-determined and contingent organisational structures.

As such, conservation is inherently political. It involves a multitude of institutions from the supranational to the grassroots, government bodies and individuals, embroiled in a nexus of relationships mediated by money, laws, customs, knowledges, geopolitics, biophysical properties, vegetation, charismatic and uncharismatic wildlife and more (Brosius, 2010). Using a political ecology lens can be powerful in explorations of conservation, as they share key concerns e.g. ‘truth’ about the relationship between society and nature, negotiations about access to and control over natural resources, and the distribution of environmental costs and benefits (Neumann, 2005).

Research where political-ecological enquiry intersects with a focus on discourse is diverse; examples include Fletcher’s (2010) poststructuralist critique of neoliberal environmentality, Benjaminsen and Svarstad’s (2010) analysis of contradictory conservation discourses and practices in Tanzanian and South African protected areas; Holmes et al’s (2017) exploration of perspectives on the new-conservation debate using Q methodology; Escobar’s (1999,

1996) expositions on poststructural and antiessentialist political ecologies; and Roth's (2004) exploration of traditional and state-scientific environmental knowledge across scales in forest management in Thailand.

2.4.3 Bringing power into networks: Articulations between Political Ecology and Science and Technology Studies

As mentioned in section 2.4.1, the "discursive revolution" (Bryant, 2001, p. 161) of the poststructural turn in political ecology led to an increasing concern with the generation and application of knowledge (Goldman and Turner, 2011; Robbins, 2012). One of the disciplines that political ecology has engaged with to address such gaps is Science and Technology Studies (STS) (Goldman and Turner, 2011). STS is cross-disciplinary, drawing from anthropology, sociology, history and philosophy of science, feminist science studies and policy studies. It aims to analyse how knowledge is produced, circulated and applied, and to understand the co-constitutional relationship between knowledge about the world and the world itself (Goldman and Turner, 2011). STS's core tendencies include using expanded definitions of the social 'actor', adopting critical reflexivity, and explicitly acknowledging the interplay between knowledge-claims and normativity (see Felt et al., 2017). As such, STS firmly rejects the realist-positivist ideology that separates the realms of the natural, objective and factual from the realms of the cultural, subjective and emotional (Jasanoff, 2004b), instead characterising lived experience as the outcome of complex world-making processes of *co-production*: "the realities of experience emerge as the joint achievements of scientific, technical and social enterprise: science and society, in a word, are *co-produced*, each underwriting the other's existence" (Jasanoff, 2004b, p. 17).

Felt et al suggest that "[STS's] strength lies in its capacity to be an integral part of other intellectual and social environments" (2017, p. 4). STS has tended to work in western sites of knowledge production – famously, the laboratory – and historically has not engaged with the 'messiness' of the (many and varied) conservation biology, forestry, wildlife or agricultural field sites where political ecology emerged (Goldman and Turner, 2011). Political ecology, meanwhile, has often produced work which is "highly geographically bounded" (Watts and Scales, 2015, p. 230). Uniting these strengths and concerns of political ecology and STS has therefore produced work collecting empirical data from expanded field sites, showing how environmental knowledge claims are generated, circulated, practiced, sustained and

transformed when they are 'applied' in context. Examples include Goldman's (2011) ethnographic work in Laos, which uses combines 'traditional' field-based data with office-based data to show how the World Bank's specific brand of 'green knowledge' becomes authoritative both internationally and locally; and Cullen's (2020) work which explores environmental subject formation as a function of 'expert' knowledge production in post-conflict Timor Leste. To maximise the productive potential of uniting PE and STS, Rocheleau advocates for introducing network thinking into political-ecological analyses of human-environment relations, suggesting that such an approach provides researchers with the analytical agility to move through complex and far-reaching networks of human, non-human and inorganic actors stretching across vast geographical distances, but without diminishing or underplaying the significance of biophysical and material realities. In other words, introducing political ecology to network thinking can "bring [actor network] models "down to earth," to reconcile networks with energy flows, nutrient cycles, and movements of people and other beings in territories and ecosystems" (2011, p. 214). Here, then, she suggests that this kind of approach compels researchers to consider how connections are made between sites of knowledge production and sites of knowledge application, discursively and materially, through a variety of actors. Ways of 'doing' this kind of network thinking, and of expanding the definition of 'actors' in environmental politics, is discussed in more detail in section 2.5 below.

2.4.4 Scale in political ecology

As alluded to in section 2.4.1, a key issue in political ecology is its treatment of scale. While classic political ecology's 'chains of explanation' approach was seminal, the way in which scale is conceptualised in this model tends towards a series of nested hierarchies from the household or land manager level all the way 'up' to forces of the global economy. This attracted critique from those who felt that it did not adequately account for the capacity for actors to move or jump between scales, nor for actors to resist the power being enforced upon them from the higher scales 'above' (Sayre, 2015). Alternative formulations for addressing the trickiness of scale in political ecology and developing alternative frameworks to the 'regional political ecology' delivered through chains of explanation emerged in the form

of relational ontologies, such as assemblage and actor-network theory¹⁰. For example, Rocheleau (2008) suggests shifting the ‘centre of gravity’ away from the vertical and linear hierarchy implied in a chain of explanation, and towards webs of relationships: complex networks in which connections can be both horizontal and vertical. This is the topic of discussion of the following section.

2.5 Thinking in networks

I use phrase ‘thinking in networks’ to denote a suite of approaches in the post-humanist tradition, united by their invitation to the researcher to think in terms of connections and relationships between multiple elements, and to recalibrate our understanding of power as something which can also inhere in non-humans (Watts and Scales, 2015). This section introduces some of the ways relational thinking is used in research on human-environment relationships. This is the penultimate section, before I synthesis the themes and concerns outlined so far in section 2.6.

2.5.1 Actor-network theory

Actor-network theory (ANT) is a specific branch of STS most strongly associated with Latour (2005, 1996). Goldman and Turner state that “ANT provides a framework for analyzing the production of knowledge as occurring through relational networks, where objects (e.g., people, animals, microbes, tools, institutions) contribute equally as agents (actants) to the configurations and reconfigurations of the network itself” (2011, p. 12). The singular agency of the non-human has been articulated in ANT through the concept of *symmetry*. Symmetry is a way of apprehending elements of research which consciously works to overcome binaries that pervade in geographical thought: the local/global, nature/society, subject/object etc (Watts and Scales, 2015). In political-ecological work, therefore, employing symmetry can help researchers think beyond these intellectual impasses: helping scholars to think past the nature/society dichotomy discussed in sections 2.1 and 2.2 by reminding us that each of these categories cannot exist prior to its interaction with the other (Castree, 2002); or prompting researchers to contemplate all entities – human, non-human and inorganic – as potential

¹⁰ Assemblage and networked thinking in general is discussed in more detail in section 2.5 ‘Thinking in networks’

actants (Watts and Scales, 2015). It also helps the researcher to decentre the human. As generators and interpreters of knowledge, our tendency is to place ourselves at the centre of analysis, but in a world which is not inherently human-centred, this is not always helpful: “Symmetrical explanations allow people and institutions critical roles in determining outcomes, but also allow non-people to have efficacy and a crucial role in making the world” (Robbins, 2012, p. 77). ANT also compels researchers to address issues of scale in our analysis of complex problems, prompting us to resist categorising interactions or processes as e.g. local or global, and instead allowing us to see connections which may *transcend* those spatial levels or scales (Castree, 2002; Rocheleau, 2011).

2.5.2 Assemblages

Employing symmetry and embracing a new kind of non-human power is intellectually exciting, but this kind of radical horizontal ontology can be flattening and, ultimately, analytically unsatisfying, tending towards the descriptive (Castree, 2002; Watts and Scales, 2015). An alternative to the rigidity of this ‘strong’ ANT is a more loosely-defined engagement with assemblage thinking. Müller (2015) characterises assemblage as the more philosophical cousin of ANT, suggesting it is more a way of thinking or seeing than a strictly-defined method or approach.

Research which employs the assemblage as a lens includes Lorimer’s *Wildlife in the Anthropocene*, in which he uses the assemblage to explore conservation as “a dance of relations conducted, but not composed, by human actors” (2015, p. 183); Li’s (2007b) use of the assemblage concept informs her understanding of community forest management as a global project stretching from Canada to the islands of Indonesia; and Whatmore’s seminal *Hybrid geographies*, in which she positions the FAO’s resolution on plant genetic resources as a moment within a broader plant genetic resources assemblage, which she characterises as “a mode of orderings that is neither a discrete instance nor a complete state, but rather an immanent gathering of forces” (2002, p. 95). What these diverse works have in common is an embracing of complex networks, which do not dismiss hierarchies of power, but rather contextualise them within both horizontal and vertical connections to a multitude of different people and things, sometimes stretching in unexpected ways across geographical distances, and complicating our understanding of both space and scale.

Such approaches can help overcome the linear conceptualisations of power implied within political ecology's 'chains of explanation' approach – indeed, this is the approach taken by Mariki et al in their paper 'Elephants over the Cliff', which explores human-elephant conflict in Tanzania (Mariki et al., 2015). In this paper, the authors align with Rocheleau's 'webs of relation' approach – a way of approaching assemblages which, by adopting the organic and dynamic language of 'rooting' and 'networking', places particular emphasis on the dynamism and flux of assemblages as they are made and unmade (Rocheleau and Roth, 2007; Rocheleau, 2008). Rocheleau argues that thinking through the complexity of assemblage and in webs of relation can help political ecologists "embrace complexity without losing the explanatory power of structural relationships, or the empirical roots of [political ecology]" (2008, p. 724).

As with ANT, thinking in terms of assemblages necessitates a reconceptualization of power which decentres the human, but in a way subtly different from that espoused in 'symmetry'. Li states that a key feature of the assemblage is "its potential to finesse questions of agency by recognizing the situated subjects who do the work of pulling together disparate elements *without attributing to them a master-mind or a totalizing plan*" (Li, 2007b, emphasis added). Li's idea that power can be exerted via assemblages even in the absence of clear intent or an overarching plan is shared by Lorimer. He claims that assemblages possess inertia, and that they are "haunted by pasts, groove present practice, and serve to anticipate different futures" (2015, p. 10). Such a conceptualisation of assemblages, which does not necessarily demand the 'symmetry' approach of 'strong' ANT, leaves more scope for a more satisfying account of different kinds and qualities of power, embracing the singular agency of the non-human elements of an assemblage in their formation, without necessarily placing them on an equal plane with human beings.

2.5.3 Accounting for the more-than-human

Taking an expanded approach to the power or agency of the non-human has been productive in social science on conservation, including in works of political ecology. Arguably, studying conservation from a social perspective necessitates an ontology which accounts for the agency of the non-human. As such, Jepson et al (2011), in their paper 'What is a conservation

actor?', argue for an expanded understanding of conservation actors in assemblages, beyond individuals, groups, organisations, and institutions to include the non-human. One example explored in the paper is the Indian elephant. Here, the elephant's unique non-human agency is made manifest in its influence over conservation planning in terms of landscapes, itself realised through the elephants' articulations with technologies, scientific knowledge, and conservation institutions in Asia. Jepson et al's paper then expands the category of conservation actors to include the inorganic, positing that the IUCN Red List too is a conservation actor/actant¹¹, conceptualising it as conservation device – a broadly-defined technology which is positioned as a tool under direct human control, but which also exerts influence by “[intensifying] agency”, channelling action and strategy in specific, but not always predictable, directions (p232).

Put simply, in studies of the ‘ontological choreography’ of conservation – Lorimer’s “dance of relations conducted, but not composed, by human actors” (2015, p. 183) – it is important to acknowledge that “things other than humans make a difference in the way social relations unfold” (Bakker and Bridge, 2006, pp. 17–18). Robbins, in his critical introduction to political ecology, warns against the “banality of the obviously material”, and emphasises that “the insight that non-human things matter is, in and of itself, not very important or revelatory” (2012, p. 241). As such, this thesis takes the contention that ‘things matter’ not as a revelation, but rather as a lens which informs our enquiry of the corridor: a necessarily spatial conservation concept which draws in a diverse cast of people, wild animals, biophysical landscape elements, laws and regulations, administrative boundaries, and conservation-related technologies. However, by adopting a more flexible assemblage perspective, we can account for different *kinds* of power and agency as they articulate through networks, without succumbing to the ‘flattening’ ontology of ANT. Drawing from theories and tools established in both STS and political ecology, researchers might begin to “bring power into network models of assemblages of people, other living beings, technologies, and artifacts” (Rocheleau, 2011, p. 214).

¹¹ Note that in this thesis I primarily use the word ‘actor’, being aware that use of the word ‘actant’ has an association of ‘stronger’ versions of ANT which I do not employ. On the few occasions where I do use the word actant, it is to make particular emphasis on differentiating between human and non-humans.

2.6 Synthesis

As alluded to in my research rationale in section 1.5, I broadly conceive of the corridor as an assemblage as a way of helping me understand how claims about corridors are made and deployed by different kinds of people, in different contexts both abstract and concrete, as part of a complex network of conservation knowledge and practice. In so doing, I intend to build on the social science scholarship on corridors reviewed in chapter 1. This work suggests the corridor concept is discursively flexible to the extent that corridors manifest in diverse, and often contested, ways, when they are put into practice on the ground. However, the literature discussed in chapter 1 does not explicitly discuss what these discursive and material manifestations tell us about how conservation stakeholders think about nature, society, and conservation practice more broadly; nor does it speak to the connections between various discursive and material manifestations of conservation corridors at different scales, if any; or explore what facilitates or hinders the proliferation of corridors across a conservation landscape, beyond people acting with intent. In this thesis, I structure my exploration of the corridor assemblage by working at different spatial levels, and corresponding levels of abstraction. The structure does align with scale or spatial levels as a ‘nested hierarchy’; this reflects the organisation of conservation practice, planning and day-to-day governance within the geographical boundaries of one country. However, I use these ‘nested hierarchies’ as a schematic, or almost as a heuristic device, allowing me to structure my enquiry of the corridor assemblage, whilst being open to the possibility of articulations and connections which do not necessarily follow this hierarchical scalar model.

Engaging with assemblage thinking means being open to the idea that *things* – including non-material things such as administrative borders, or rules and regulations – play a formative role in the constitution of ‘nature’, and the ways in which we apprehend and (attempt to) manage it; this is a core tenet of STS. After Robbins (2012), I begin my enquiry from a simple acknowledgement that things “matter” in some sense, using this as an exploratory lens rather than an answer known in advance. In this way I remain open to thing-power or the ‘vitality of things’, to paraphrase Bennett (Bennett, 2009), allowing for a broadened understanding of what constitutes a conservation actor, but without tying me to the flattening or descriptive elements of ‘strict’ ANT, which, as discussed above, do not always provide satisfactory accounts of different *kinds* of power in networks. In other words, accepting that “things

matter” complicates our understanding of power, extending it beyond people acting with intent, to include a particular kind of agency or influence wherein non-human actors may direct or channel action by way of their *connection* with the other elements within an assemblage.

However, this thesis also closely aligns with political ecology’s post-structural turn, as discussed in sections 2.4.1 and 2.4.3. I recognise, as outlined in sections 2.1 and 2.2, that truth is an effect of power, and as such this thesis concerns itself with *stories* about the status of nature, acknowledging that the categories of ‘nature’ and the ‘natural’ are deceptively complex, and that what we know about nature shapes how we choose to act upon it. As such, acknowledging Hess and Fischer’s (2001) claim that “Much of the discord in the literature is caused by attempts to cram too much meaning into the single word, ‘corridor’” (p203), one aim of this thesis will be to unpack some of the various meanings of this word as they appear across different spatial levels and levels of abstraction within the corridor assemblage. By paying particular attention to these discursive aspects of the conservation corridor assemblage, I hope to enhance understanding of how the conservation corridor fits within existing complexes of conservation knowledge and practice. Here, I take as a central precept Haraway’s contention that “It matters what thoughts think thoughts” (Haraway, 2016, p. 39), which succinctly encapsulates the notion that established categories and modes of thinking determine how ‘new’ ideas and strategies can emerge. Applying this to the concept of the assemblage, this means being attuned to how discourses travel through networks, working to “groove present practice, and [...] anticipate different futures” (Lorimer, 2015, p. 10). In this thesis, I explore this particularly with regards to the production of space, in line with the work discussed in section 2.3, which outlines the dominance of spatially-oriented approaches in conservation practice, and the ways in which this is represented through mapping. I therefore explore the production of corridor space, as made possible through the discursive conservation corridor assemblage.

After Rocheleau (2011), I adopt assemblage less as a defined theory with predictive qualities, than as an “enabling metaphor” (p214) which will shape my broad research approach – prompting me to question the entrenched nature/society binary, expand the purview of enquiry “beyond fixed polygons” (p217) of specifically conservation corridor projects

tethered to a geographical location, and acknowledge the potential for non-human and inorganic actors/actants to shape conservation outcomes. Adopting a more loosely-defined assemblage approach will allow me to unite elements of political ecology and STS, which “can bring power into network models of assemblages of people, other living beings, technologies, and artifacts” (Rocheleau, 2011, p. 214). By bringing discourse analysis into articulation with network thinking, this provides a framework for exploring how corridor-related discourses permeate different settings of conservation practice, and how these discourses, when deployed by key actors and facilitated and constrained by “technologies and artifacts”, result in corridor-related outcomes which can be understood not as the result not of a “master-mind or totalizing plan”, but rather “assembled from an existing repertoire of habit, accretion, and bricolage” (Li, 2007).

Having established my approach to this examination of the corridor as a social phenomenon – through the theoretical apparatus of a discursive assemblage – the following chapter outlines the geographical context within which my research took place.

3 The Tanzanian Context



Figure 3.1 - Map of the United Republic of Tanzania, highlighting the administrative region of Morogoro and the approximate location of the Kilombero Valley. Map by Phil Stickler.

Tanzania is a large coastal country in East Africa. It has a total area of 947,300 km² of which some 175,641 km² are under the nation's strictest form of protection for conservation as national parks and game reserves (104,661 km² and 70,980 km² respectively, The National Bureau of Statistics, 2020). Tanzania is home to iconic wildlife species and world-renowned landscapes, the presence of which has been steadily woven into the fabric of Tanzanian identity, economics and statecraft throughout its colonial and postcolonial eras. It is also home to over 55 million people (The National Bureau of Statistics, 2020), the majority of whom are rural people who depend on agriculture as their primary livelihood activity

(Robinson et al., 2011). Preservation of the ‘spectacular’ and the ‘wild’ in Tanzania – the enduring and collectively-imagined ‘Nature’ emerging from western myth(s) of untouched, empty wilderness spaces (see Cronon 1996, and section 2.2.1) – is a preoccupation in both professional and lay conservation communities, and over time, shifts in Tanzania’s economic and political systems, along with paradigm shifts in global conservation, have shaped the approaches taken to managing nature and society within Tanzania’s national borders.

In this chapter my aim is to provide an overview of the historical and political context within which my exploration of the corridor for conservation takes place. This chapter is necessarily selective due to restrictions on space. Section 3.1 provides a brief overview of Tanzania’s colonial administrations, including establishment of Tanzania’s first protected areas. The Selous Game Reserve is briefly discussed as a case study. Section 3.2 discusses Tanzania’s transition to independence, and how the value of spectacular landscapes and charismatic wildlife in the global marketplace shaped postcolonial conservation policy. Section 3.3 outlines the key features of government, governance, and conservation practice in contemporary Tanzania. Section 3.4 provides brief contextual information on the Kilombero Valley, where data was collected on specific corridor spaces and projects¹². Each section highlights key points about conservation and natural resource governance.

3.1 Pre-independence

3.1.1 Governance and resource control in German East Africa and Tanganyika

Tanzania’s era of colonialism began in 1885 when, with somewhat opaque political motivations (Iliffe, 1979) and against the geopolitical backdrop of the so-called European ‘scramble for Africa’ (Kimambo and Maddox, 2017), Imperial Chancellor Otto von Bismarck took the decision to create a German colony in East Africa. With no acknowledgement of pre-colonial history, European settlers and observers alike perceived the onset of colonialism in German East Africa as a “radical break from the past”, and embarked on their colonial project with the strong belief that “the advanced principles of capitalism...would bring Africa out of its backwardness” (Hydén, 1980).

¹² More detailed information on the Kilombero Valley area, and specific villages where data collection took place, is included in the relevant empirical chapters as this thesis progresses through Parts I and II.

German colonial rule in what is now independent Tanzania was broadly characterised by military occupation, lack of compliance and outright resistance from African leaders and peasants (e.g. Meru and Arusha people around Mount Meru and what is now Arusha National Park, see Neumann 1998), spread of epidemic disease, unsuccessful attempts to apply European knowledge to Tanzanian agrarian systems, and, eventually, ransacking of resources to support the German war effort (Hydén, 1980; Iliffe, 1979; Kimambo and Maddox, 2017). This included the unfolding of a geographically uneven complex of regional labour laws and regulations on land use, which often saw Africans concentrated into specific areas so that the remaining land might become European-owned estates (Kimambo and Maddox, 2017). The changing legal and regulatory environment was on occasion intended to help secure African labour on large-scale agricultural plantations, with the primary aim of supplying raw materials to Germany (Iliffe, 1979).

After a period of allied occupation, the German colonial period ended when the territory was ceded to Britain on the 1st February 1920 as per the terms of the Treaty of Versailles, and German East Africa became the separate Belgian colonies of Rwanda and Burundi, and the British Mandated Territory of Tanganyika (Kimambo and Maddox, 2017; Neumann, 1998). The British introduced a paternalistic indirect rule in place of the German colonial authorities' direct administration (Kimambo and Maddox, 2017). However, the overall aim of turning the territory over to the service of the colonial-capitalist economy – whether by incorporating Africans into the cash economy as plantation labourers, or through misguided attempts at controlling, influencing or regulating peasant agriculture – remained the same (Hydén, 1980). In short, the general objective of domination over resources – including people – endured throughout Tanzania's colonial era.

3.1.2 Conservation under colonialism

German colonial authorities established forest reserves –231 by 1914 – in which African settlement, cultivation, burning and grazing was prohibited (Neumann, 1998). They also created Tanzania's first eighteen game reserves in which all hunting was prohibited, and established a requirement for hunting licenses for most animals, including those commonly hunted for meat (Neumann, 1998). These were the first forays into formalising control over and access to spaces and natural resources in a place where, formerly, custom, tradition and

communal rights had reigned. The British built their own system of natural resource and wildlife management on these foundations, importing the “landscape way of seeing” – a term coined by Cosgrove (1985) to describe the externalising, detached and highly visual approach to space, predicated on surveying, mapping and appropriating space, emerging in fifteenth century England – into colonial Tanganyika (Neumann, 2003). They sought to reconfigure space for either economic development (i.e. agriculture) or nature preservation – a schematic which emerged from both a desire to enrol resources into the capitalist economy, and a belief in the superiority of European culture, knowledge, and technical ability to manage land (Hydén, 1980; Neumann, 2001a, 2003).

The British colonial authorities retained the strictest limitations on land and wildlife resource use within “complete” game reserves in the Game Preservation Ordinance of 1921, replacing the German Game Ordinance of 1908/1911 (Neumann, 1998). However, the ordinance did allow colonial governors to permit hunting of game for food in certain circumstances – e.g. for communities which generally relied on game for subsistence, or during times of famine (ibid). In large part due to lobbying from the increasingly influential London-based Society for the Preservation of the Fauna of the Empire (SPFE)¹³, the ordinance of 1921 was replaced by the Game Ordinance of 1940, which introduced the new protected area category of the national park. However, the ordinance retained many of the traditional hunting and customary land rights outlined in the 1921 ordinance – much to the chagrin of the SPFE, who described African hunting as “slaughter” (ibid). Neumann states that this moment of conflict epitomises a tension between conserving natural resources and upholding human rights that would come to characterise Britain’s relationship with the Tanganyikan territory until it became independent in 1961¹⁴. This tension was both the cause and consequence of resource policies that were “indeterminate and ambiguous about African rights”, which did not completely prohibit African access to natural resources and wildlife, but did position it as a ‘privilege’ rather than a right (Neumann, 1998, p. 106).

¹³ Now Flora and Fauna International

¹⁴ Independent Tanganyika in 1961, with Tanganyika and an independent Zanzibar unifying to become Tanzania in 1964

The kind of preservation envisaged by the SPFE perceived that there was a threat to Tanganyika's status as an African Eden, and that protected areas like national parks and game reserves could prevent this (Anderson and Grove, 1989). This 'Eden complex' mindset was common in colonial settler communities in Africa (Anderson and Grove, 1989), and as such, "[the] definition, designation, and regulation of national parks were, to a large degree, concerned with making ecological reality conform to this imagined African landscape" (Neumann, 2003, p. 243). Part of this imagined landscape included the coupling of trophy hunting with nature preservation, and the simultaneous positioning of traditional African hunting as antithetical to preservation (Neumann, 1996; in Neumann, 1998). The potent combination of hunting legislation and the appropriation of land for national parks and game reserves across the entire colonial period served to dramatically and permanently alter property, land, and resource access relations (Neumann, 1998). Centralising control over wildlife as both an economically and intrinsically valuable resource was thus central to the racialised and paternalistic processes of colonial statecraft: "the establishment of national parks in colonial Tanganyika was as much a process of nature *production* as of nature *preservation*" (Neumann, 2003; p251).

3.1.3 The case of the Selous Game Reserve

The case of the creation of the Selous Game Reserve is emblematic of the complex mixing of ideological-ecological, economic, and social motivations in the creation of formal protected areas, displacing and relocating both people *and* wildlife through interventions that would have a lasting impact within Tanzania's borders. Neumann (2001a) explains how the British colonial authorities' efforts to control tsetse fly (and by extension sleeping sickness), to limit crop destruction, and to benefit from ivory and trophy hunting, led to a major project to control elephants numbers and locations in south-western Tanzania (Neumann, 2001a, 2001b). The colonial authorities expended huge amounts of effort in their nationwide attempts to control elephants, using a combination of culling (scouts working for the Game Preservation Department were killing over 800 elephants a year in Tanganyika in the 1920s, and up to over 3,000 a year in the 1940s) and corralling (Neumann, 2001a). Peasants who lived and farmed in the path of the driven elephants were provided with no assistance from colonial authorities, either in terms of defence from or compensation for crop damage (Neumann, 2004). This eventually led to the almost total abandonment of some of the most

fertile land in Tanzania, constituting an important element in establishing the image of the (eventual) Selous Game Reserve as “a sparsely populated, remote, and fly-infested landscape” (Neumann, 2001a, p. 652).

Put crudely, elephants were shot at to concentrate them into areas that would, in 1940, come to be formalised as the “rare slice of undisturbed wilderness” (&Beyond, n.d.) that is the Selous Game Reserve as it is known today. As the decades progressed, the motivation for the maintenance of elephants in specific spaces shifted away from reduction of crop damage and towards supporting the nascent tourism economy. Now, the Selous Game Reserve is described by the Tanzanian Wildlife Management Authority on their website as “undisturbed nature where relatives of the dinosaurs walked over 160 million years ago” (Tanzania Wildlife Management Authority, n.d.). This is emblematic of how, as discussed in section 2.3.2, protected areas are shrouded in discourses which completely obscure the political and historical context underpinning the codification of these landscapes into spaces of wilderness – “[hiding] its unnaturalness behind a mask that is all the more beguiling because it seems so natural” (Cronon, 1996, p. 7).

For Bluwstein and Lund (2016), the struggles over the first incarnations of ‘fortress conservation’ as epitomised in Tanzania’s national parks and game reserves are now considered a “closed chapter of history”, to the extent that any thought of questioning these protected areas or rethinking their boundaries seems entirely far-fetched. Years of colonial management were formative in the construction of wilderness and natural spaces in Tanzania and, by extension, the modern Tanzanian nation-state, with protected areas in Tanzania representing “an historic transition under modernity wherein human civilization becomes the caretaker of a whole nature that poses no threat beyond the threat of disappearing” (Neumann, 2004).

3.2 Post-independence

3.2.1 *Ujamaa*, liberalisation, and growth without prosperity

The first president of independent Tanzania, Julius Nyerere, publicly declared his vision for African socialism in a rousing speech delivered in Swahili to the Tanganyika African National Union – Tanzania’s only political party at the time – in Arusha in 1967. The influence of

Nyerere's dialogue with the Fabian Society's Colonial Bureau during his time studying in Edinburgh in the 1950s is evident in the vision for socialism expressed in the so-called Arusha Declaration (Stråth, 2016). In this speech, he spoke of *ujamaa*, an abstract noun which has been translated variously, but can be taken to mean familyhood (Hydén, 1975). For Nyerere, the realisation of *ujamaa* was as much a personal and moral imperative as it was a political and economic one: "Socialism, for Nyerere, was the rejection of selfishness" (Ferguson, 2006). The original concept of *ujamaa* rested on four interconnected principles: that people should live together; that they should jointly own the means of production; that people should work together; and that they should equally share the benefits of their labour (Hydén, 1975). In Tanzania, the transition to socialism was the result not of class struggle or revolution, but of a conscious policy choice made by Nyerere and his close circle (Hydén, 1975),

Ujamaa represented the most developed and concrete expressions of African socialism: a discourse of politics, ideals and ideologies which emerged from African postcolonial leaders in the 50s and 60s (Lal, 2015). However, Nyerere's utopian vision for self-reliance would turn out to be at once naïve, idealistic, and cynical "in various and changing proportions" (Stråth, 2016, p. 186). One of the most complex and challenging elements of *ujamaa* was 'villagization', the mechanism through which Nyerere's vision for collective agrarian production would be realised. The first step was physical relocation of people into villages where they could build houses and farm private plots. The intention was that collective production and the eventual establishment of cooperative society would follow (Hydén, 1975), bringing scattered rural communities into organised villages and thus into the fold of Tanzania's socialist agenda (Nelson and Makko, 2005). From 1973-1976, at least 5 million people were relocated, many forcibly, into villages in which layouts, house designs and local economies had been at least partly planned by agents of the central government (Scott, 1998). This programme of overt spatial and social engineering – effectively the spatial manifestation of Nyerere's understanding of mechanised agriculture and economies of scale – represents an attempt to realise a high modernist vision no doubt influenced by development discourse at that time (Scott, 1998). While villagization failed as a mechanism for delivering agrarian collectivism, it did succeed in creating a lasting "village-centred political imaginary" (Lal, 2015, p. 8) in a country which still has a majority rural population. The

structures of village governance established at that time remain today, as is discussed in section 3.3.1 below.

At a macro scale, economic mismanagement under *ujamaa* was exacerbated both by global recession in the 1970s in the wake of the oil crisis, and war with Uganda under Idi Amin (Hyden and Karlstrom, 1993; Nelson and Blomley, 2010). There was mounting debt, default on foreign investor payments, a burgeoning black market, inflation, loss-making public enterprises and shortages in important inputs (Edwards, 2012; Nord et al., 2011). Dwindling aid and the onset of economic collapse provided the backdrop for the abrupt end of Tanzania's socialist era, ushering in a period of liberalisation and privatisation under structural adjustment beginning in the mid-1980s (Nelson, 2012; Nord et al., 2011). Nyerere's successor from 1985, Ali Hassan Mwinyi, accepted this package of market-oriented financial reform as part of the IMF's Economic Recovery Programme (Edwards, 2012) – this included the introduction of a private banking system, unification of the exchange rate, and price liberalisation (Robinson et al., 2011). This kickstarted a period of rapid economic growth in Tanzania, which eventually led to the current era of macroeconomic stabilisation, resulting in higher broad-based GDP growth, a reduction in inflation, and other indications of macroeconomic stability (Nord et al., 2009). However, Tanzania is also emblematic of sub-Saharan African “growth without prosperity” (Nelson, 2012, p. 363), with substantial and consistent economic growth over the past 20+ years failing to reduce high levels of poverty (Brockington et al., 2018). This is especially true of rural populations, who lack market access, and are particularly vulnerable to the shocks and stresses of climate change and shifts in food and resource prices (Nelson, 2012).

3.2.2 Socialism and safaris: post-independence conservation

By the time Tanzania became independent, it had a network of protected areas created by German and British colonial authorities¹⁵. That same year, Julius Nyerere, the first president of independent Tanzania, declared in the Arusha Manifesto that “In accepting the trusteeship of our wildlife we solemnly declare that we will do everything in our power to make sure that

¹⁵ While it is often pointed out that Serengeti was the only national park established before Tanzanian independence, in practice, many of the national parks technically established post-independence were former game reserves and forest reserves which simply changed designation to national park (Neumann 1998).

our children's grandchildren will be able to enjoy this rich and precious inheritance” (reproduced in Neumann, 1998, p. 140). Neumann emphasises, however, that this speech – which also included invitations for technical assistance, training and funding from other nations – was written for Nyerere by members of conservation groups from the global North (Bonner 1993, in Neumann, 1998). Nyerere is also quoted as saying that while he personally was “not very interested in animals” and did not share with Europeans and Americans the “strange urge” to see them, he strongly believed that, after diamonds and sisal, animals would “provide Tanganyika its greatest source of income” (quoted in Weiskopf, 2015, p. 431).

The protection of wildlife, then, has been positioned as economically expedient since the formation of Tanzania as a modern nation state. As Tanzania opened its economy to the rest of the world as part of Ali Hassan Mwinyi’s sharp turn towards economic liberalisation, the spoils of wildlife tourism were now fair game – so to speak. The tourism sector boomed in Tanzania, and has since grown to become one of its most important sectors (discussed in section 3.3.3.2 below). Politicians in the newly independent Tanzania saw the value in wildlife, and so positioned the government as the trustee for this valuable common property (Weiskopf, 2015) – an appointment which remains in place today. Appreciating wild animals as a valuable resource helps understand how the government of an independent Tanzania adopted many of the legal mechanisms and administrative structures of colonial conservation largely unchanged (Neumann, 2001b), and why not only land but also wildlife itself remains under a problematic and contradictory central control – as is discussed in section 3.3.3.2.

3.3 Contemporary Tanzania

This section outlines the key features of governance, land use planning and wildlife conservation in contemporary Tanzania, and highlights some defining characteristics of the political economy of wildlife conservation in Tanzania, particularly through protected areas.

3.3.1 Governance

Sub-national government in Tanzania is arranged at four levels (Table 3.1). Each level of government, from the village to the regional, has both a political and an administrative component with the former broadly corresponding to elected representatives, and the latter to centrally-appointed civil servants (Greco, 2016; interview data).

The present system of village government and authority in Tanzania is a legacy of *ujamaa*, with the system described above dating back to the mid-1970s when the programme of villagization was still ongoing (Nelson and Makko, 2005). Villages are managed by village councils comprising up to 25 elected officials, including a village chairman, and by a village executive officer appointed by the central government (Nelson and Makko, 2005). As the majority of the Tanzanian population is rural, the village remains the most important unit of governance arguably until today.

Local government structure and functions in mainland Tanzania		
Administrative/ Political Level	Functions	Number in mainland Tanzania
Village Government	Overseeing development activities at the local level; ensuring local law and order; enforcement of local bylaws; co-ordination of local planning, overseeing land use planning and allocation	10,571 (registered)
Ward	Co-ordinating and supporting village planning, supervising service delivery and ensuring integration of priorities into district plans and budgets	1,756
District Council	Maintaining law and order and good governance; ensuring equitable and effective delivery of services to people in their areas; raising, receiving and disbursing funds in line with local development priorities	97
Regional Administrative Secretariat	Linking local governments to central ministries; advising local governments on planning, financial management and service delivery; monitoring and reporting local government activities to central government	21

Table 3.1 – Functions of government from the village to the regional level. From Blomley (2006)

In the 1990s liberalisation of Tanzania’s political system took place to allow for a multi-party electoral system (Nelson, 2012); but the ruling part of Chama Cha Mapinduzi (which emerged from the revolutionary party of Tanganyika African National Union) has remained in power for the entirety of Tanzania’s post-colonial period. Government in Tanzania is characterised by concentration of power into the executive branch – a hangover from colonialism (Nelson, 2012). At the same time, the ‘hollowing out’ of the Tanzanian state as it liberalised its economy under structural adjustment has created governance vacuums, allowing officeholders to position themselves as brokers of influence and power to private interests in a system of what Igoe refers to as a “fragmented sovereignty” (Igoe, 2007). This has enabled

present-day Tanzania to become what Benjaminsen et al. (2013) call a neo-patrimonial state, in which political elites establish and maintain authority through patronage and rent-seeking, and are sometimes able to appropriate public resources for personal gain.

3.3.2 Land and land use planning

Legally, all land in Tanzania is public land, with the president acting as trustee. All Tanzanian land falls within one of three categories: general (urban plots, investor-held land – circa 2%), reserve (mainly conservation, also land for public utilities such as roadsides, circa 28%), or village (rural land under management of Tanzania’s circa 12,000 villages, circa 70%) (Maganga et al., 2016; Nelson, 2005). General land is managed and administered by the central government (Maganga et al., 2016), and is characterised by Bluwstein et al as an “ambiguous residual land category” (2018, p. 810). However, only general land can be rented by investors, under leases of 33, 66 or 99 years under ‘certificates of occupancy’ (Maganga et al., 2016). Reserve land, which largely consists of protected areas, is managed and administered by the central government via various state bodies (Bluwstein et al., 2018). Rules and restrictions on what activities can take place within protected areas designated within the reserve land category vary – an overview is provided in Table 3.2.

Village land is managed and administered by village governments. The Local Government Act of 1982 and the Village Land Act 1999 nominally secure the rights of a village to determine its own land-use plan, as per the wishes of the village assembly (all adult villagers) under the leadership of the Village Chairman (elected), the village council (25 positions, elected), and the village executive officer (appointed by the central government). The Village Land Act 1999, and the Land Act 1999, both enshrine the right and the responsibility of village governments to manage their land with respect to forest management and conservation purposes (Blomley and Iddi, 2009). Often, though, the law as laid down in the Act is at odds with the pluralistic reality of *de jure* land tenure in Tanzania, which comprises a blend of customary and statutory law, and in which rural people often lack the means to pursue or claim the rights they legally hold (pilot trip contact).

Additionally, the Tanzanian president always retains the authority to claim village land and transfer to either general or reserve land if it is in the “public interest”, as per the Village Land

Act of 2009 – a clause which is vague enough to have been open to interpretation and, on occasion, abuse (Noe, 2014). Some security of land tenure is offered to smallholder individuals and households in the form of certificates of customary rights of occupancy (CCROs). CCROs cannot be issued until villages have been registered with the Commissioner of Lands, which requires village boundaries to have been surveyed and demarcated, and a village land use plan completed (Stein et al., 2016).

Processes for village land use planning are set out in the Land Use Planning Act (2007). This Act establishes village councils, district councils and the National Land Use Planning Commission (NLUPC) as the planning authorities at the village, district and national levels¹⁶. The Act requires the involvement of all relevant stakeholders in the preparation of village land use plans, including the village assembly. However, as Walwa (2017) points out, the Act does not set out sources of funds for any planning activities at any level. Private interests are often the most able to dialogue directly with political elites, including regional and district officers who, since their power stems from the presidential office, largely perceive their power to supersede that of elected village officials regardless of what is stipulated in the law (Locher, 2016). This leaves land use planning processes – including at the village level – vulnerable to the control of powerful actors, leading Walwa to consider land use plans as potential ‘repertoires of domination’.

3.3.3 Conservation practice

This section outlines the most pertinent aspects of wildlife conservation in Tanzania as delivered through protected areas. I begin with a brief overview of protected areas categories in Tanzania, before discussing the social and political aspects of protected areas in Tanzania in both ‘fortress’ and community-based conservation paradigms. I finish this section with a short explication of corridors as a conservation strategy in Tanzania.

3.3.3.1 Protected areas

There are multiple categories of protected area in Tanzania. Some, like game reserves and national parks, represent some of Tanzania’s flagship conservation areas like the Serengeti and Selous, where ‘nature’ can thrive relatively unimpeded by people. National parks and

¹⁶ District land use planning is effectively an aggregate of village land use plans within the district.

game reserves, managed by the Tanzania National Parks Authority (TANAPA) and the Tanzania Wildlife Authority (TAWA) respectively, have the severest restrictions on what kind of activity can take place within their borders. Other protected areas, like Village Forest Reserves and Wildlife Management Areas, represent Tanzania's turn towards community-based conservation, while Game Controlled Areas remain both legally and politically ambiguous (Bluwstein et al., 2018). These spaces are managed variously by Tanzania Forest Services, other dedicated parastatal organisations, conservation NGOs, and village and district governments. Table 3.2 on p63 provides an overview of the different kinds of protected areas in Tanzania and key information.

Collectively, Tanzania's array of protected areas signals its decidedly spatial approach to conservation, centring on demarcating specific spaces where 'nature' can survive or thrive as per differing management models. Together they cover at least 38% of the country's land mass (UNEP-WCMC, 2019) – though this figure could be higher (Bluwstein et al., 2018). This is demonstrative of how Tanzania's national conservation strategy centres on a pursuit of the 'territorial fix', itself a legacy of Tanzania's colonisation (as discussed in sections 2.3 and 3.1 above).

3.3.3.2 Fortress conservation by stealth: contemporary conservation in Tanzania

The amount of protected area coverage in Tanzania, at a minimum of 38% (as above), is world-leading; according to the latest available data from the World Database on Protected Areas in 2018, Tanzania has the second highest proportion of terrestrial protected area coverage on mainland Africa after the Republic of Congo, and the 14th highest in the world (World Bank, n.d.). This is testament to considerable efforts made to protect its biodiversity. However, there are human impacts of pursuing such a path to conservation. Examples of land alienation, poor compensation, exploitation and even violence in the name of conservation in Tanzania – historical and more recent – have been consistent (e.g. Anderson and Grove, 1989; Benjaminsen and Bryceson, 2012; Brockington, 2002; Brockington and Igoe, 2006; Gardner, 2012; Neumann, 1998; The Citizen, 2019; Walsh, 2012), with these outcomes a function of the classic approach to conservation as the establishment and defence of protected areas (Adams, 2004). The maintenance of 'pristine' protected areas (see section 2.3.2) is key to Tanzania's tourism economy: spatial manifestation of a myth of unchanged,

'primitive' Africa where wildlife encounters are skilfully managed by safari guides who reflect global discourses on Tanzania's natural heritage back to their international clientele (Salazar, 2010, 2006). Tourism is undoubtedly important in Tanzania – it contributed over USD 9 billion to Tanzania's economy in 2019, amounting to 10.4% of GDP and one in ten jobs. However, it also fuelled a rapid proliferation of claims to land where wildlife was abundant (Brockington and Igoe, 1999; Nelson, 2012; Neumann, 1998). The spoils were, and frequently still are, captured by elite

Category	Introduced	Management model	Managed by	Notes	Land category	Key legislation	Resources
National Park	1940s	Exclusionary; centrally managed	Tanzania National Park Authority (TANAPA)	Hunting not permitted. Tourism and research activities permitted.	Reserve	Game Ordinance of 1940; Wildlife Act 2009	(Neumann, 1998)
Game Reserve	1890s	Exclusionary; centrally managed	Tanzania Wildlife Authority (TAWA)	Hunting permitted in hunting blocks.	Reserve	Game Preservation Ordinance of 1921; Game Ordinance of 1940	(Neumann, 1998)
Game Controlled Area	1940s	Exclusionary (though see notes); centrally managed	Tanzania Wildlife Authority (TAWA)	Ambiguous category – originally restrictions only on hunting and not on land use. Recently changed with the introduction of the Wildlife Act of 2009. Hunting permitted in hunting blocks.	Reserve	Wildlife Act 2009	(Bluwstein et al., 2018; Noe, 2014)
Nature Reserve (aka Forest Nature Reserve)	1990s	Exclusionary; centrally managed	Tanzanian Forest Service	Hunting not permitted. Tourism and research activities permitted.	Reserve	Forest Act 2002	(Ministry of Natural Resources and Tourism, n.d.)
Ngorongoro Conservation Area	1959	Exclusionary (with some Maasai communities permitted to live within the boundaries of the PA); centrally managed	Ngorongoro Conservation Area Authority	Ngorongoro Conservation Area is unique in Tanzania in its management approach and legal designation.	Reserve		(Neumann, 1998)
Forest Reserve (aka National Forest Reserve)	1890s	Exclusionary; centrally managed	Tanzanian Forest Service		Reserve	Forest Conservation Ordinance 1983; Forest Act 2002	(Neumann, 1998)
Wildlife Management Area	2000s	Community-based	Communities forming Community Based Organisations	Flagship mechanism for CBC in Tanzania. Communities are responsible for managing their land in accordance with the relevant laws and regulations.	Village	Wildlife Act 2009; Land Use Planning Act 2007; Village Land Act 1999	(Benjaminsen et al., 2013)
Community-based forest management (e.g. village forest reserves)	1990s	Community-based	Communities forming village forest committees	Communities are responsible for managing their land in accordance with the relevant laws and regulations.	Village	Forest Act 2002; Village Land Act 1999	(Blomley and Iddi, 2009)

Table 3.2 – Overview of protected area categories in Tanzania. Adapted from Bluwstein et al 2018

groups and foreign interests, with little ‘trickling down’ to the communities who bear the opportunity costs of protected areas (Honey, 2008; Nelson, 2012).

The narrative of community-based conservation (CBC) began to emerge as an important counternarrative to ‘fortress conservation’ in the 1980s, becoming more established in 1990s as part of a broader paradigm shift in coupling conservation and development objectives (Adams, 2004; Noe, 2014). CBC approaches tended to promote strategies for natural resource management developed from the ‘bottom up’, emphasising participation, and linking conservation objectives to the development needs of communities living alongside, or indeed within, protected areas. This trend was observable in Tanzania, where CBC was written into the national conservation strategy in the 1998 Wildlife Policy, mandating the devolution of wildlife management responsibility to local communities in order that they might accrue benefit from conservation (Nelson and Makko, 2005).

However, CBC has not proven to be a panacea, with the Wildlife Management Area (WMA) an illustrative case study. The WMA represents Tanzania’s flagship mechanism for delivering CBC. Some 20 WMAs have been established in Tanzania since the early 2000s, and with another 18 or so planned, in total these WMAs would cover some 7% of Tanzania’s surface area (Homewood et al., 2015). In theory, WMAs decentralise management of wildlife and devolve decision-making to local communities – as mandated in the 1998 Wildlife Policy. The basic premise is the opportunity cost of villages providing land for WMAs, prohibiting certain land uses and restricting their access to natural resources, is countered by the generation of funds from wildlife-related tourism activities (mainly hunting). In practice, prohibitive cost, complexity of process, and the state’s reluctance to rescind control over a resource as valuable as wildlife, makes devolution partial at best, and limits WMAs’ capacity to generate benefits (Benjaminsen et al., 2013; Bluwstein et al., 2016; Keane et al., 2020; Nelson et al., 2007; Nelson and Blomley, 2010). This tension between theory and practice can create an implementation gap in which powerful organisations, including conservation NGOs, can co-opt the rhetoric and legislation of CBC to create spaces of conservation “without the messy politics of actually establishing a new

protected area” (Igoe and Croucher, 2007). Additionally, there is no clear legislation for disestablishing a WMA, and research suggests this would be extremely difficult: in the event that all villages participating in a WMA decide to cease operation, the Wildlife Division¹⁷ retains the right to decide whether or not to ‘give back’ the land to the villages (Bluwstein et al., 2016). This speaks to a contradiction at the heart of CBC in Tanzania: the tension between state ownership of all wildlife enshrined and consolidated in law, and CBC-oriented policy reforms, which results in a quasi-devolution of natural resource management and a unique brand of CBC-from-above¹⁸.

3.3.3.3 *Corridors for conservation*

Against this backdrop, corridors for conservation have been becoming more conspicuous in Tanzania’s conservation complex for some time. In the absence of provision for wildlife corridors in the Wildlife Act of 1974, on-the-ground expressions of corridors for conservation in Tanzania have been formalised (or ‘gazetted’) to varying extents and using different mechanisms: as forest reserve (the Derema forest corridor in eastern Tanzania; see Hall et al., 2014); as a collection of WMAs (the Selous-Niassa Corridor; see Bluwstein and Lund, 2016); or even, in the case of Tanzania’s “first wildlife conservation corridor” as a ‘farm’¹⁹ with specific restrictions on land use (the Kitendeni elephant corridor; see Kikoti et al., 2010). Other corridors have been named or identified in Jones et al’s (2009) unpublished report produced with the Tanzania Wildlife Research Institute – including the Ruipa Corridor, which will form the topic of chapters 6 and 7.

The first legal provision for corridors in Tanzania was made in the Wildlife Conservation Act of 2009, which replaced the Act of 1974. Developed under the lead of USAID, and based upon their technical input report for the preparation of regulations (Debonnet and Nindi, 2017), the regulations define the wildlife corridor as “an area of land used by wild animal species in their seasonal movement from one part of the ecosystem to another in search of basic requirements

¹⁷ The Wildlife Division is the body through which the Tanzanian state maintains ownership of wildlife

¹⁸ For a detailed explanation of the development of this tension between centralised authority over wildlife use on one hand, and the rhetoric of devolution on the other, see Nelson and Blomley (2010)

¹⁹ In their paper, Kikoti et al explain in detail the establishment of a multi-village task force committee and the subsequent development of specific permissions and restrictions for the corridor space, before it was formally established with the NLUPC via the district council. Permissions included livestock grazing, medicinal plant collection and deadwood collection; settlement of any kind was not permitted.

such as water, food, space and habitat” (United Republic of Tanzania, 2018, p. 3). According to the Act, the Minister for Wildlife has the authority to designate wildlife corridors “after consultation with the relevant local authorities”; however, the mechanisms by which this could practically be done were not outlined until the introduction of supporting regulations in March 2018.

The corridor regulations effectively stipulate that corridors should be agreed upon using participatory processes including all stakeholders, and then managed using joint management committees with representation from across stakeholder groups (United Republic of Tanzania, 2018). At the time of data collection, no corridors had been protected or created using the corridor regulations. The corridor regulations largely follow the WMA model (Debonnet and Nindi, 2017; United Republic of Tanzania, 2018); as such, corridors established in this way would potentially have the same vulnerabilities discussed in section 3.3.3.2 above.

The empirical chapters 5-9 will explore the unfolding of the corridor phenomenon, including the development of the corridor regulations, in more detail. This section is intended to provide basic information about corridors for conservation in Tanzania, within the context of Tanzania’s spatially-oriented conservation complex.

3.4 The Kilombero Valley

This section provides an overview of the key socio-economic and ecological characteristics of the Kilombero Valley area (Figure 3.2). This is important context for chapters 6 and 7, in which I explore the Ruipa Corridor (a purported wildlife corridor traversing the Kilombero Valley), and for chapters 8 and 9, which examine the impacts of the corridor concept ‘touching down’ in two villages within the Kilombero Valley area. More detail about the socio-economic and ecological context of the Kilombero Valley is also provided in those chapters where pertinent.

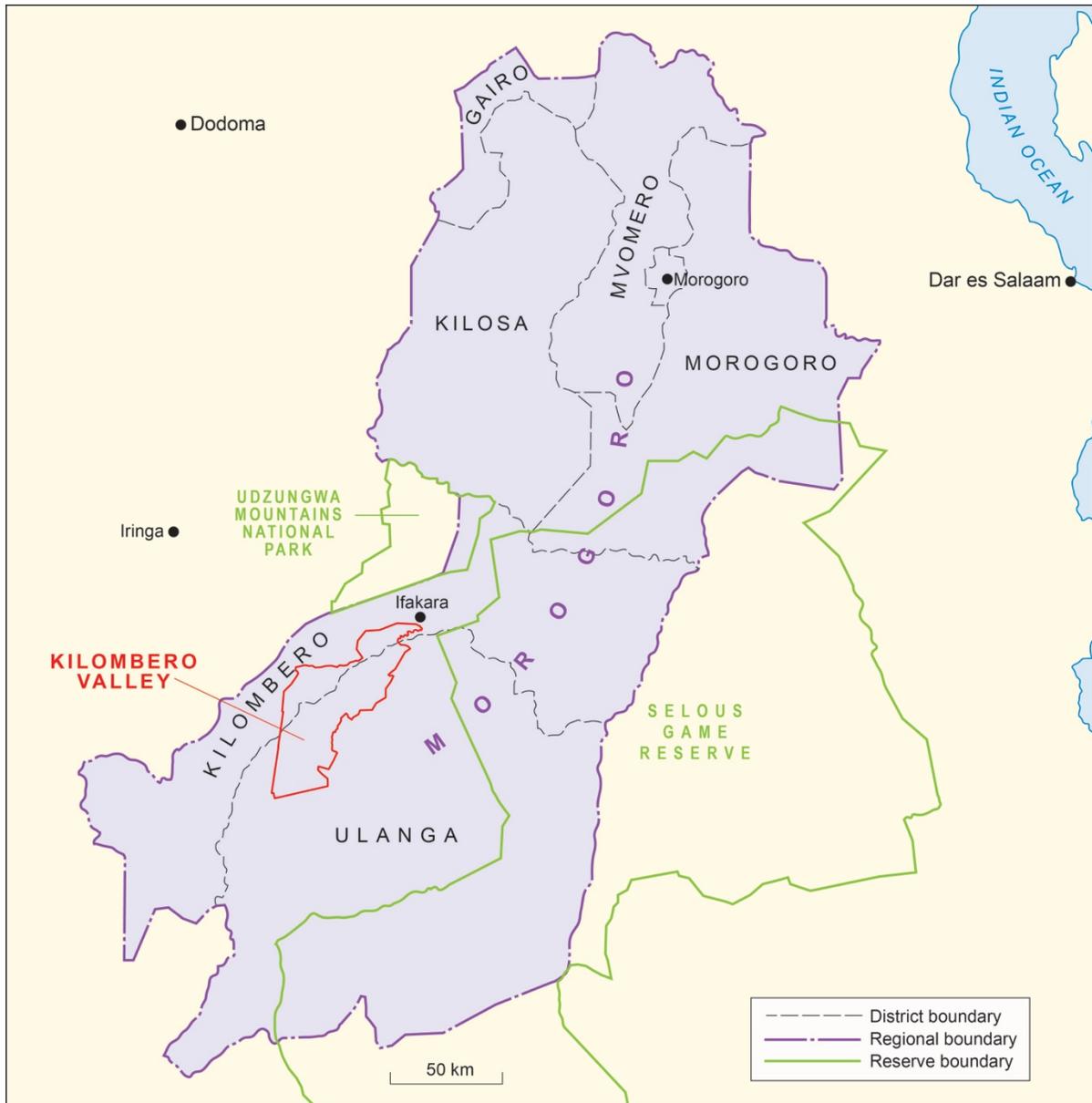


Figure 3.2 – Map showing the Kilombero Valley area's position between Udzungwa Mountains National Park and the Selous Game Reserve. Map by Phil Stickler.

3.4.1 The Kilombero Valley and its surrounds

The Kilombero Valley is in southern Tanzania's Morogoro Region, and is the largest low-level (less than 300m above sea level) freshwater wetland in East Africa (Kangalawe and Liwenga, 2005). The floor of the Kilombero Valley is a seasonal floodplain. around 220km long and up to 70km wide (Daconto et al., 2018). There are many permanent and seasonal rivers feeding the floodplain, with the permanent Kilombero River running roughly through the centre; water levels can rise by several metres during the Valley's rainfall peak, which occurs from November to May

(Daconto et al., 2018). The Valley floor and its surroundings have historically been home to multiple large and charismatic fauna including elephant, buffalo, lions, leopards, crocodiles, hippo, and various plains game. The Valley is home to 75% of the world’s population of puku, an endemic, semi-aquatic and wetland-dependent antelope (Mombo et al., 2011). According to both primary and secondary data sources, many animals move to the valley floor during the dry season, and return to the surrounding uplands and forests during the wet season. There is a wide range of habitat types in the area: swamps, grasslands, and riverine forests within the Valley; and evergreen rainforest, montane forest, miombo woodland in the surroundings. In addition, there are large cultivation areas (both rainfed and irrigated), and several large commercial rice and teak plantation areas.

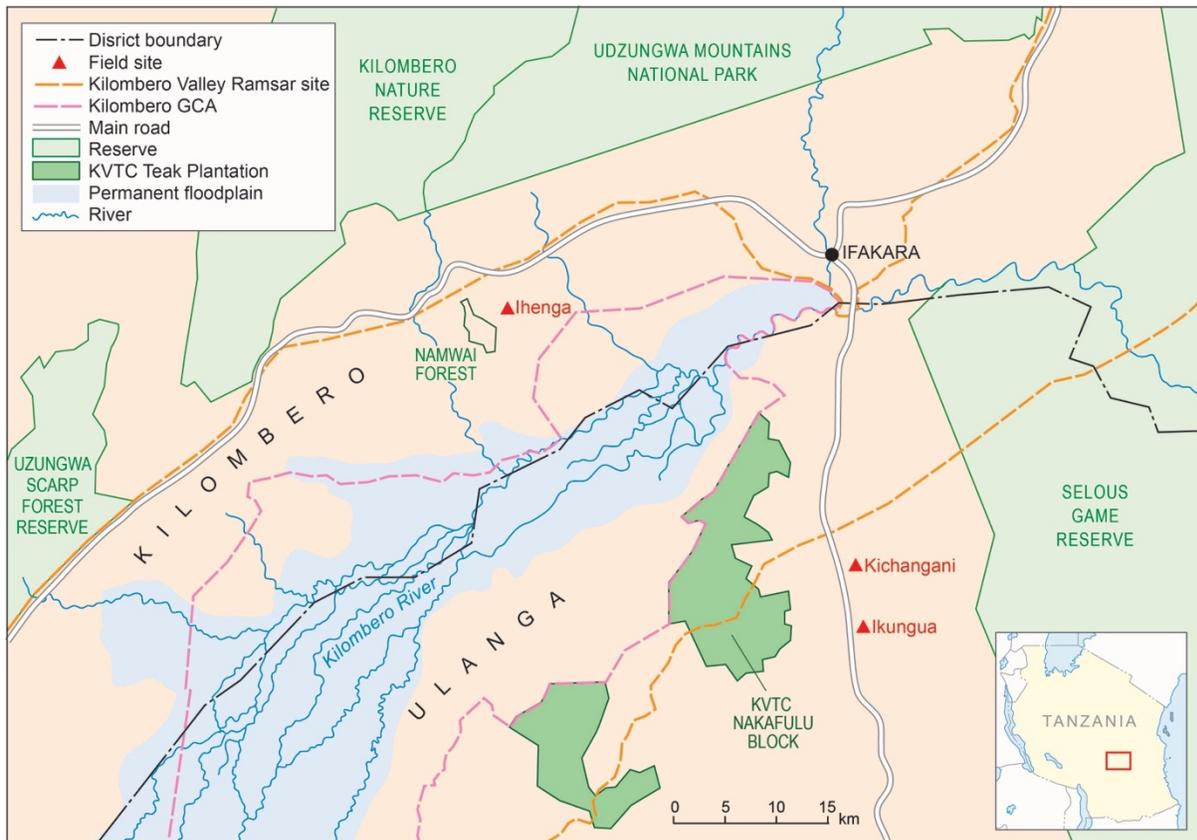


Figure 3.3 – Map showing detail of the Kilombero Valley area and its surroundings. Map by Phil Stickler.

The Kilombero Valley is situated between the Udzungwa Mountains National Park and the Kilombero Nature Reserve, which lie to the north, and the Selous Game Reserve, which lies roughly to the east (Figure 3.3). The valley floor and some surrounding uplands are designated as

a game controlled area (GCA) (Figure 3.3). As alluded to in section 3.3.3.1 above, the GCA is a legally and politically ambiguous category of protected area. Since the game ordinance of 1921²⁰, the status of GCA placed restrictions only on wildlife resources, and not on land use. This made them a “nominal category of reserved land”, which villagers perceived to still be village land (Noe, 2014), until the status of GCAs was with the Wildlife Act of 2009, to prohibit not only wildlife utilisation, but also grazing, farming, building or any other human activities. In 2002, the Kilombero Valley Floodplain area was designated as a Ramsar site, in recognition of its status as an internationally important wetland. The borders of the Ramsar site exceed the borders of the GCA. The Ramsar designation affords no formal protection to the area. The Udzungwa Mountains National Park and the Selous Game Reserve, meanwhile, are afforded the highest level of protection in Tanzania: no human activities at all are permitted within the boundaries of national parks or game reserves, unless by the express permission of TANAPA’s Director of Wildlife, or by the Director of TAWA, respectively. Udzungwa Mountains National Park was established in 1992, Selous Game Reserve in 1896²¹ (Tanzania National Park Authority, 2019; Tanzania Wildlife Management Authority, n.d.).

There are no points at which the Kilombero GCA directly connects with either the Selous Game Reserve, or the Udzungwa Mountains National Park; other categories of land – village, privately leased, (contested) wildlife managements areas, cultivated areas or village forests – lie between (see Figure 3.3).

3.4.2 Livelihoods, economic activities and projects in the valley

At various points surrounding the Kilombero GCA, there are clusters of villages with varying populations and levels of development. Village centres tend to be situated along the main roads running from Ifakara town along the northern and southern ‘edges’ of the Kilombero Valley floor, in Kilombero and Ulanga districts respectively (note that in Figure 3.3 above, only villages where fieldwork was conducted are indicated on the map). In terms of administration, the Valley (including the GCA) and its surrounding villages, forests, swamps and woodlands fall into Ulanga,

²⁰ This act eventually became the Wildlife Conservation Act of 1974

²¹ Refer to section 3.x above for a more detailed account of the history of the Selous Game Reserve

Kilombero and Malinyi districts. There is a large rural population with a high level of dependence on land for livelihoods (Johansson and Isgren, 2017; Kangalawe and Liwenga, 2005; “National Bureau of Statistics | Statistics for Development,” n.d.). More specific detail on villages in Ulanga district where fieldwork took place is provided in the relevant empirical chapters as this thesis moves through its differing scales of enquiry.

Significant private interests in the valley include Kilombero Plantations Ltd (a British-managed industrial rice farm operating in Kilombero District), and Kilombero Valley Teak Company (a South African- and Finnish-owned teak plantation renting large plots in both Ulanga and Kilombero Districts). Both have long-term leases (99 years) with the central Tanzanian government. There is very little tourism: most tourism in the area centred on trophy hunting. However, in 2010 one of the two hunting outfits located in the area ceased operating (interview data).

There have been multiple planning and conservation related projects active in the Kilombero Valley which are pertinent to this study: Frontier, a private voluntourism company; the Kilombero and Lower Rufiji Ecosystem Management Project (KILORWEMP), developing an integrated management plan for the wider Valley area; and the Land Tenure Support Programme, working on individual land titling and land tenure formalisation. Table 3.3 on p72 provides an overview of these projects, including partners, sources of funding, and years active. These projects, and the important individuals associated with them, are introduced as necessary and discussed in more detail as they are introduced in the methodology chapter, and throughout empirical chapters 6, 7, 8 and 9.

3.5 Conclusion

Tanzania has a complex recent political and economic history which, as outlined in brief above, has seen colonial rule transition to independence, and African socialism to economic liberalisation. Bluwstein et al (2018) argue that land alienation – whether for protected areas, plantation agriculture, villagization, mining or tourism – has permeated Tanzanian history from the colonial, through post-colonial villagization and into liberalisation eras. Throughout this time, the central tenet of wildlife conservation in Tanzania – the creation and formalisation of bounded

areas for ‘nature’ – has endured largely unchanged, even as Tanzania’s policy narratives adjusted to reflect paradigm shifts in the global conservation discourse from ‘fortress’ to community-based conservation.

Regardless of the approach, for a nation with a majority rural population in which agriculture supports around 80% of rural livelihoods (FAO, 2019), the decision to remove land from production – even peaceably – carries a cost. Decisions on how land can and should be used in Tanzania seriously impact Tanzanian lives and livelihoods. Wildlife conservation activities are often controversial, yet Tanzania’s vast ‘natural’ wealth means it occupies a special place in the (elite) global imaginary (Adams, 2004). As such, the recognition of Tanzania as the most important mainland African country for conservation (Caro and Davenport, 2016) places it under a singular pressure to preserve what Büscher (2012) might call its ‘inverted commons’ – where those who are least able to afford it are saddled with the cost of preserving a ‘nature’ which they may not recognise, from which they are excluded, or which brings them no discernible benefit. At the same time, historically- and politically-rooted ideas about how conservation should be done have, to an extent, become “genuinely African” as they are internalised, particularly by African elites and middle classes (Adams and Hulme, 2001).

As corridors for conservation unfold across Tanzania’s conservation landscape – both literally and figuratively – an exploration of the dynamics of corridor discourse, the production of corridor space, and the consequences this has for the people who must live with or alongside corridors, will provide a snapshot of Tanzania’s conservation zeitgeist, and inform our understanding of Tanzania’s wildlife conservation and land management practices more generally. The following chapter outlines the methods I employed to address these issues.

Name	Organisation type	Partners	Financing	Years active	Aims and/or activities	Notes
Frontier's Corridor Project 'Conserving the Ruipa Corridor: facilitating cohesive management between diverse stakeholders'	UK-based, globally operating voluntourism organisation, with a focus on wildlife conservation projects	Partners on the corridor project were University of Dar es Salaam, Kilombero Valley Teak Company, Ulanga District Council	Financing for the corridor project came from Darwin Initiative. Overall, many of Frontier's activities across the globe are funded by volunteer fees	The 'Conserving the Ruipa Corridor' project was active from 2009-2011/12. Frontier had been present in the Valley since the 1990s, but wrapped up their operations there finally in 2012.	Frontier's general aim in the Valley was to bring volunteers to the Valley area on placements focusing mainly on monitoring large mammal presence. Frontier successfully applied for a grant from the Darwin Initiative (a UK government grant scheme for worldwide projects protecting biodiversity and natural resources) for their 'Conserving the Ruipa Corridor' project, aimed at restoring and/or protecting wildlife corridors in the Kilombero Valley.	Frontier's 'Conserving the Ruipa Corridor' project ultimately focused on two villages only – Kichangani and Ikungua – which are the focus of chapters 8 and 9.
Kilombero and Lower Rufiji Ecosystem Management Project (KILORWEMP)	Temporary project implemented via collaboration between Enabel (formerly known as the Belgian Technical Corporation) and Tanzania's Ministry of Natural Resources and Tourism	n/a	Belgium via Enabel; the European Union	2012-2018	To facilitate the sustainable management of the Valley's wetland ecosystem, preserving "ecological balance", improving livelihoods for local communities, and enduring economic development is sustained (see project page at the Belgian OpenAid website).	The project's final output was a non-binding framework for action which contained recommendations for the development of an integrated management plan for the Kilombero Valley Ramsar site (see Daconto et al., 2018). This included an appended suggested management plan for the so-called Ruipa East wildlife corridor (Daconto and Games, 2018). This project's activities and legacy are discussed in chapters 6 and 7.
Land Tenure Support Programme (LTSP)	Temporary project led by DFID (UK) (lead partner)	Co-partners are SIDA (Sweden), DANIDA (Denmark) and the Tanzanian Ministry of Land, Housing and Human Settlements (implementing partner)	UK via DFID, Sweden via SIDA and Denmark via DANIDA	2017 and 2018	To formalise land use and improve security of land tenure in rural Tanzania, in two main ways: by clarifying external village borders of villages, and borders between different areas within villages (grazing, farming, settlement etc); and by issuing households with certificates of customary rights of occupancy (CCROs).	LTSP's pilot activities were conducted in the districts of Kilombero, Ulanga and Malinyi in the years 2017 and 2018. LTSP's activities in Ulanga district are explored in chapters 8 and 9.

Table 3.3 – Overview of relevant conservation and planning projects in the Kilombero Valley

4 Methodology

4.1 Introduction

The empirical chapters of this thesis are divided into three parts, broadly corresponding to the national, sub-national and local level. I begin by exploring corridors in the abstract which, for the purposes of the ‘schematic’ approach to scale alluded to in my theoretical synthesis, outlined in section 2.6, I correspond to the national level. As the empirical chapters progress, I work ‘down’ the scalar schematic, via the regional to a more concrete local level. This section provides an account of my research process as applied in this multi-scalar approach. I begin by explaining my research philosophy and reiterating my theoretical framework. In section 4.3 I explain my approach to the field, given that my ‘field sites’ were spread across multiple spatial levels. Section 4.4 outlines methods employed, and includes information on rationale and sampling. In section 4.5 I situate myself and others in my research. Section 4.6 deals with ethical considerations. Section 4.7 briefly discusses linguistic considerations.

4.2 Research philosophy and theoretical framework

My research philosophy is a composite of the literatures and theories discussed in chapter 2. As a reminder, I summarise the epistemological underpinnings of my research and my theoretical approach below.

I adopt as a starting premise that nature is a social construct. By this I do not deny the existence or biophysical properties of that which many people classify as ‘nature’. Rather, I am stating a position that it is not possible for human beings to apprehend that nature completely free of historical and philosophical baggage, to ‘get at’ nature as it ‘really’ is; “the objects of the world exceed human political life and action but do not exist and cannot be known outside it” (Robbins, 2012, p. 76). This broadly aligns with Neumann’s definition of critical realism, set out at the beginning of *Making Political Ecology*, which, he states, “starts from the premise that the world exists independently of our knowledge of it and that its very independence means that human knowledge is not itself reality, but our representation of it” (2005, pp. 9–10).

For this reason, a sense of discursive consciousness permeates all elements of this research. Seeing nature as social also means, for this thesis, that I am “seeking to recognize ‘society’ and ‘environment’ in non-dualistic ways” (Castree, 2003, p. 203). In this sense, social nature’s refusal to accept the categories of ‘nature’ and ‘society’ as binaries dovetails with the work I broadly refer to as ‘network thinking’ in geography. As discussed in section 2.5, these approaches share both a concern with connections between different elements within networks, and an explicit acknowledgement of the agency of the non-human within these extensive entanglements. I employ different methods to tackle the themes set out in chapters 1 and 2, acknowledging that political-ecological work often entails the use of multiple different methods within studies (Neumann, 2005). However, given the emphasis I have placed on the importance of discourse within the corridor assemblage, note that discourse analysis is employed not as a separate research method, but rather as a methodological outlook. I define my use of discourse analysis after Adger et al, who point to the following three elements: “analysis of regularities in expressions to identify discourses; analysis of the actors producing, reproducing and transforming discourses; and social impacts and policy outcomes of discourses” (2001, p. 684).

Placing my work within the broad field of political ecology allows me to accept the premise that nature is a social construct, acknowledging the situatedness of knowledge about nature, but without straying into ‘strong’ relativism; and to accept the agency of the non-human, but without sacrificing analysis for a flat description of connections between elements. After Castree (2003, p. 205), therefore, I adopt as a guiding question: “what kinds of “nature” are subject to what kinds of “constructions” and with what consequences?” This discursive-relational lens allows me to see my data as ‘stories about the status of nature’, whilst acknowledging that those stories are not generated from or into an apolitical vacuum; some knowledges count more than others.

4.3 Approaching the field

My approach to research was exploratory. Taking general inspiration from scholars including Tsing (2015) and Lorimer (2015) – both of whom have produced theoretically agile expositions of complex human-environment networks, supported by rich empirical data from a range of sources – I attempted a research design that would allow me to ‘follow the thing’ (Cook,

2004). The ‘thing’, in this case, is the corridor. This necessitated a flexible approach to gathering data, guided less by predetermined geographical location than by a handful of possible corridor ‘leads’ combined with curiosity and intuition. This being an exploratory project, the research design evolved and was adjusted as my time in the field progressed – for example, the decision to use Q methodology (see section 4.4.1) to explore professional perspectives on corridors was taken towards the end of the data collection period, to provide insight into perceptions of the conservation corridor in the *abstract*, as a counterpoint to discussions of specific corridors that had already taken place. This is perhaps the most obvious example of the project evolving; however there were myriad adjustments, tweaks, decisions, last-minute journeys, opportunities taken and instances of inaction throughout the period of data collection.

Corresponding with my multi-scalar approach, data collection took place across a range of places and settings, as detailed in the following section. My broad guiding philosophy was to attempt a methodology of ‘seeing multiple’: “a radical empiricism that seeks to understand complex assemblages by treating them as networks, observing and evaluating them from multiple standpoints (nodes) within a given structure” (Rocheleau and Roth, 2007, p. 433). In this way, I attempt to provide a kind of multi-site ethnography of the corridor idea (this is discussed again in section 4.4.6.1) in the multiple guises in which it manifests across Tanzania’s conservation landscape – whether on painted signboards, in technical reports or power-point presentations, in vegetation cover or wildlife presence, as discussed in the offices of conservation NGOs, parastatal organisations, or in villages in rural Kilombero.

I cannot make a claim to have ‘mapped’ the corridor assemblage in its entirety throughout Tanzania. Rather, I allowed myself to be guided through Tanzania’s current corridor moment: seeking out material evidence of corridors or connectivity; and picking up on glimpses of optimism, pessimism, hope, irritation, resistance, acquiescence and perplexity from those who are entangled, willingly or otherwise, within the corridor assemblage.

4.4 Methods

This section provides specific details on data collection methods. Methods are presented roughly in the order they appear in the thesis. Table 4.1 provides an overview of how data collection methods address different research questions across the chapters of this thesis.

A total of nine months was spent in the field collecting data.

Main research questions (from section 1.5)	<ul style="list-style-type: none"> • Who are the key stakeholders in corridors for conservation – particularly in terms of corridor identification, implementation and impact – and how are corridors for conservation discursively constructed by these stakeholders? • What kind of ideas underpin support for (or objection to) corridors for these different groups? • Do these discursive constructions differ in different locations, at different levels of spatial scale, within a national conservation landscape? • How do the discursive constructions of corridors shape the production of corridor space? • What else contributes to how corridors spaces manifest on the ground? • How do corridors impact on the people who must live with or alongside them when they ‘touch down’ in specific places? 					
Thesis part	Part I		Part II		Part III	
Spatial level	National (Tanzania)		Subnational/regional (Kilombero Valley, Morogoro region)		Local (Kichangani and Ikungua villages)	
Thesis chapter	Chapter 5		Chapter 6	Chapter 7	Chapter 8	Chapter 9
Sub Qs	<p>How did the corridor ‘arrive’ into Tanzania?</p> <p>What are the professional conservation stakeholder perspectives on the corridor in Tanzania, in the abstract? What do they think corridors are, and what do they think they are for?</p> <p>What do their perspectives tell us about their views on nature more broadly, and about how to ‘do’ conservation in Tanzania?</p> <p>What are the points of consensus and divergence? And how might this influence the way corridors play out (or do not play out) on the ground?</p>		<p>How did the corridor ‘arrive’ at this sub-national level? Who and what facilitated this?</p> <p>Do regional conservation and planning stakeholders accept the corridor as a meaningful, useful category in the geographical area in which they are working?</p> <p>Do conservation corridors constitute part of their day-to-day work? How?</p> <p>How, if at all, does the corridor manifest materially on the ground? How, if at all, is this recognised by conservation stakeholders?</p> <p>How do the discursive or material manifestations of the regional corridor resonate with the perspectives on corridors in the abstract discussed in Part I?</p>		<p>How did the corridor ‘arrive’ at this local level? Who and what facilitated this?</p> <p>How, if at all, does the corridor manifest materially on the ground? Who supports or maintains the corridor space now? Who objects to it? Why?</p> <p>How does the presence of a corridor space at this locale affect the people who live and work there?</p> <p>Do they understand, accept, like or dislike the corridor? For what reasons?</p> <p>To what extent does this local manifestation articulate with the abstract corridor explored in Part I, or with the sub-national corridor discussed in Part II, within which this village-scale corridor falls?</p>	
Data	Q sorts and accompanying interviews, documentary review/other context-informing work		Semi-structured interviews with professionals/elites; observation; documentary review; regional stakeholder workshop; transect walks		Household surveys; semi-structured interviews with village residents and leadership; village-based workshops; transect walks; observation	

Table 4.1 – Overview of chapters, research questions and data collection methods

4.4.1 Q Methodology

Q is a method of by-respondent analysis which, using both quantitative and qualitative data and analysis, enables the identification of clusters of shared perspective in a group. Philosophically, Q is an appropriate tool for studies on discourses, which can be thought of as both expressive and constitutive of a (temporarily stabilised) truth, expressed and constituted by a multitude of people reaching a critical mass of consensus at a particular point in time (Hajer, 1995).

In this study, I use Q to delve into professional conservation stakeholders' perspectives on the meaning and materiality of the corridor for conservation. This fits within my broad approach of 'seeing multiple' (Rocheleau and Roth, 2007) by providing a baseline understanding of how discourse on conservation corridors operate at an 'elite' level, allowing me to contextualise my other encounters with corridors as expressed by other kinds of corridor stakeholders working in other locations and on more 'concrete' corridor projects. In other words, Q is a tool with which I can draw out discursive manifestations of the corridor in the *abstract*, which informs my experiences of corridor manifestations – both discursive and material – through specific projects or in specific locales. For examples of how Q has been used in conservation see Robbins (2006), Sandbrook et al (2011), Sandbrook et al (2013), and West (2016).

As this method is used in one-chapter only, most detail on the theory and practice of Q methodology (Q) in general, and how it was deployed for this research, is provided in Chapter 5. More detail on Q respondents is also presented in Appendix 1 (list of interviews, observation and workshops) and Appendix 2 (List of Q participants). Interviews took place in offices and professional settings in the cities of Dar es Salaam, Morogoro, Arusha and Iringa cities.

Note that the data collected using the methods outlined in the following sections was collected *before* the Q study took place, and was used in the design of the Q study.

4.4.2 Individual conversations

4.4.2.1 *Rationale*

In line with my epistemological position, acknowledging my own positionality and accepting the complex but undeniable dynamic that this will unavoidably bring to the interview encounter (see section 4.5.1), this thesis does not treat interviews as a “pipeline for transmitting knowledge” (Holstein and Gubrium, 2003), but rather as “special forms of conversation” in which “both parties to the interview are necessarily and unavoidably *active*”, and which are therefore “interpretively active, meaning-making occasions” (*ibid*, emphasis in original).

For all interviews, the broad topic of conversation – namely conservation corridors in Tanzania – was pre-determined. Within that, interviewees were encouraged to move within the broad subject matter, responding to questions in terms of what was most important to them (Longhurst, 2010). For each interview, I prepared a short list of closed context-setting questions (such as professional title if applicable, length of time in role, professional or training background, whether the respondent works directly or indirectly on any corridor or connectivity projects) to open the interview, and open-ended prompting questions (related to perceived importance of corridors within Tanzania’s broader conservation strategy, opinions on whether corridors can be built or constructed, or whether they are strictly naturally-occurring etc) which guided the bulk of the conversation. This interview guide was used flexibly, and tailored where necessary, ensuring that conversations were not only pertinent to my research objectives, interesting to the respondents themselves. As such, conversations took elements from unstructured (or informal) and semi-structured approaches to interviewing – for gathering background information and to orient myself into new subject areas, and for flexibly covering a set of pre-determined conservation topics, respectively – as outlined in Newing (2010).

4.4.2.2 *Sampling*

Semi-structured interviews were carried out with 75 respondents, ranging across socio-economic, national and ethnic backgrounds. What individuals had in common was some kind of stake in corridors for conservation in Tanzania – whether professional, personal, or both (as was the case for some village leaders). See Appendix 1 for an overview of all interviewees, key demographic data, professional background (if applicable), and date of interview.

Interviewees with a professional stake in corridors were purposively selected based on their knowledge of conservation in Tanzania. This kind of purposive sampling is appropriate for a research project which does not seek to make generalisations about a wider population (Bryman 2012), but rather appreciates that each interview is “a site of, and occasion for, producing reportable knowledge itself” (Holstein and Gubrium 2003, p68). Some of them had more involvement in corridors specifically than others, but all had at least some kind of current or former involvement with corridors based on their professional position and/or experience and/or academic background. I determined that their knowledge would be useful on two levels: first, on the level of the substantive knowledge that the respondents would share with me (the status of nature); second, on the level of what their views and opinions about corridors revealed about their understanding(s) of nature and society, and about conservation in Tanzania more generally (stories about the status of nature). The latter was the more complicated of the two to elicit; it involved a kind of semi-covert interviewing technique, wherein respondents were informed enough on my topic of research to provide informed consent (see information sheet Appendix 3, and section 4.6.2 below), and yet were unaware of the ‘secondary’ aims of the questions that I was asking, which were more to do with uncovering implicit values and knowledge assumptions that led to their (or their organizations’) perspectives on corridors.

Village-based interviewees were also selected purposively. Kichangani and Ikungua were selected as case study villages due to their location ‘within’ the broader Ruipa Corridor. Once household surveying had taken place (see section 4.4.3), some respondents were invited for group (see section 4.4.4) or individual interview. Those invited were chosen based on whether their open comments at the end of the household survey warranted more attention, or represented extreme views about corridors and/or conservation issues in their village. Other village-based interviews were conducted with village leadership, and as such were selected purposively.

4.4.2.3 Conducting interviews

Some interviews were audio-recorded, and some relied on notetaking only. Audio-recording allowed me to be more engaged with my respondent, maintaining a more ‘natural’

conversational flow (Dunn 2010; Kitchin and Tate 2000); however, notes were used as both active working documents – reminding me to pursue a line of enquiry, ask for explanation or follow up on a topic at a later point – and as back-up in case of technical failure.

4.4.3 Household surveys

4.4.3.1 *Rationale*

I developed a household survey to gather information on livelihood pursuits, tribal affiliation, general farming habits, and some basic proxy indications of wealth in my field site villages – the villages of Kichangani and Ikungua in Ulanga District. It also included questions that would provide a general indication of engagement with village spatial planning, awareness of and attitudes towards corridors for conservation (where applicable), as well as attitudes towards wild animals and conservation in villages more generally. The survey was intended to provide a foundation to my mixed methods approach, giving me a general picture of the community and the area as a whole. This work highlighted points to be pursued in more intensive qualitative research at later stages, and allowed me to make connections with people who could help me pursue those points. A copy of the survey itself is included as Appendix 5. The survey was developed with help of my research assistant, and was piloted in 28 households in Igota village in Ulanga District.

4.4.3.2 *Sampling and administration*

Two villages were selected for household surveying: Kichangani, a village that has had corridor land in its village land use plan officially since 2011; and Ikungua, a (much smaller) village which shares a border with Kichangani and which, according to some respondents, shares an officially-designated corridor area with it, too. Both villages are located in Ulanga District, falling within the south-eastern ‘side’ of the Ruipa Corridor. These villages were selected due to the (controversial and contested) presence of corridor land in their immediate vicinity.

In total 200 households were surveyed across the two villages by two research assistants working independently and concurrently. Piloting took place from 5th-9th May. The surveys in Kichangani and Ikungua villages began 10th May and concluded 31st May. Appendix 6 shows the information, sampling guidance and consent statement used by both research assistants when administering the survey, developed in collaboration with them.

Achieving a probability-based sampling strategy was impossible due to a lack of official data on the number or location of households across both villages. As such, estimates on the number of households were made by village leaders. Using this information, I originally aimed to reach 10% of households. In the event and the time that was available to us, we were able to reach over 20% of households (or, what we assume was roughly 20% of households, based on the information available to us).

Village	Estimated number of households from village leaders	Sample size	% of households surveyed (nearest percent)
Kichangani	700	136	19%
Ikungua	205	64	31%
Total	905	200	22%

Table 4.2 – Household survey coverage in Kichangani and Ikungua

The sampling strategy employed on the ground was effectively random walk combined with spatial stratification – instructions provided to research assistants (after extensive discussion and in-person briefing) can be seen in Appendix 6. Assistants were accompanied by either a village chairman or sub-village chairman who knew the village well and could ensure that there were no settlement areas left completely uncovered. Accompaniment by a representative from village leadership was both a practical and a political necessity – in terms of navigating the village space, and allowing the research to take place at all. This would have shaped the power dynamics at play during survey administration in ways that are difficult to predict or control for; for example, a village leader’s presence could have conceivably made respondents more or less truthful; or it may have made some respondents more likely to take the survey seriously, or to respond at all. Without knowing the relationship between village leaders and individual villagers, it is not possible to speculate what the effects would be. Additionally, there was no way of preventing other household members or village neighbours from observing survey administration, further complicating the power dynamic of this specific form of knowledge exchange. Research assistants were trained to explain that survey data would be used as part of an external research project conducted by a foreign researcher, with no ties to any Tanzanian institutions, and that survey data would include no identifying information in raw format, storage or presentation.

Household surveys were administered to whomever was available to answer questions on household demographics and village life, provided they were aged 18 or over. As outlined above, there was a lack of official data on village demographics; this meant that it was not possible to conduct a stratified survey to ensure coverage of particular groups – including potentially vulnerable groups like the elderly, immigrants and/or particular tribal minorities. Women were overrepresented in the survey, with 122 female respondents from 200 surveys administered, and 78 male. An initial survey question determined whether the respondent identified as head of the household or not; 125 respondents stated that they were, of which 50 were women and 75 men. The overrepresentation of women in the survey may be explained by timing; surveys were administered during the day, when male household members are more likely to be farming in plots removed from households. Surveys were administered over a fairly even split between the morning and the afternoon (99 in the AM, 96 in the PM, 5 missing) in an attempt to mitigate against this; however, it was not possible to administer surveys outside of daylight hours. The lack of a male perspective may have impacted the results of the survey somewhat – particularly the attitude-based questions, and the question about attendance at village meetings – but the relatively high proportion of women respondents identifying as household head means that the data collected on household demographics should have been minimally affected. Additionally, men’s views were also captured later in data collection through village workshops where men were overrepresented, as outlined in the following section.

4.4.4 Village workshops

4.4.4.1 *Rationale*

Village workshops were intended to function as focus groups, with activities and discussion questions selected to generate conversations on village life and how it is (or is not) impacted by the (sometimes disputed) presence of wildlife corridor space in the village, allowing me to delve more deeply into the initial trends picked up from preliminary results of the household survey.

4.4.4.2 *Sampling strategy and conducting the workshop.*

Attendees were invited from a pool selected from the household surveys. This was facilitated by including a final question in the household survey, asking participants if they would be willing to attend extra workshops. For those who were willing, and who owned a mobile

phone, their details were taken. Based on whether they expressed strong or interesting view about corridors, wildlife, or conservation in their village more generally as elicited during the household survey, I put together a list of possible workshop invitees, and gave this to my research assistant, who invited villagers to attend the workshop. He was requested, where possible, to cap attendees at 10 per workshop, to aim for a mix of men and women, and for a mix of corridor supporters and corridor objectors. Data from workshops is not attributed to individuals but rather to the workshop itself, using the identifier WSxx. Information on workshop attendees is provided in Appendix 1.

I conducted a total of four village workshops: one each in Milola village (pilot only), Kichangani, and Ihenga, and two in Ikungua. Getting women to attend workshops was generally problematic. I followed advice from my research assistants on the best time to schedule workshops to increase the changes of women attending, but to limited effect. Additionally, women were perceptibly less vocal than men in groups. I attempted to organise a second, women-only workshop in Kichangani, to try to overcome some of the gender-based power imbalances that could lead to fewer contributions from women attendees in mixed groups; sadly, no attendees at all turned up to this women-only workshop. As alluded to in section 4.4.3 above, this potentially redresses the underrepresentation of men in the household survey. Nonetheless, the underrepresentation of women in qualitative data collection through focus groups is potentially problematic. Research assistants were encouraged to redress this by encouraging women to speak and inviting specific women to comment on proceedings and conversations; overall, however, the depth in which this thesis attempts to understand village-based perspectives on how the corridor ‘touched down’, and what its impacts have been, is imbalanced from a gendered perspective, and as such perhaps lacks nuance on how men and women experience access to and use of village space differently.

Each workshop began with an invitation to draw a map of the village. This functioned as an ‘ice breaker’ exercise, bringing participants together into discussion, but also provided important information on how participants perceive their villages, particularly in respect to the location of wildlife corridor space and how it might connect or interact with other village spaces. This exercise also ‘primed’ participants for questions that followed, which centred on

their experiences or memories of the corridor space being ‘introduced’ to their village, their perceptions of changes to the village over time, their understanding of what might have caused those changes and whether they have been positive or negative, and their opinions on wildlife presence in their village. The rest of the workshop was involved open group discussion, led by my research assistant, using a guide developed by the researcher.

4.4.5 Regional stakeholder workshop

4.4.5.1 *Rationale*

I conducted a two-day workshop to which I invited regional²² conservation and planning stakeholders, held in Ifakara town, in a meeting room in the Ifakara Health Institute – a neutral space. The group discussion centred on discussing desirable and undesirable visions of the future for the Kilombero Valley. Travel expenses were covered for attendees, and lunch and basic refreshments were provided. I also paid attendees per diems, which is customary for professional events and workshops in Tanzania. I would not have held the workshop without offering this.

The regional stakeholder workshop was, in fact, originally intended to run as a scenario-building workshop. Scenario-building varies considerably based on the objectives and proclivities of the researcher – however, generally speaking, scenario-building will involve the collective identification of key and (crucially) difficult-to-control drivers of change within a defined area or system, by people who have a particular stake in or knowledge of that system, who then collectively imagine the consequences of pushing those drivers of change to extremes.

In the event, it proved difficult to get respondents away from ‘planning mode’²³, and towards thinking about extreme (but not impossible) future scenarios. Some respondents engaged with this idea very well; others, who happened to be more vocal, tended to retreat into well-established conversations centring on technical solutions, drawing from a wellspring of

²² Note that here, the term ‘regional’ is used to denote the Kilombero Valley area and its surroundings in the general sense – including the Kilombero GCA, Ulanga and Kilombero districts – and not the political-administrative division of the ‘region’ in Tanzania (as shown in Table 3.1).

²³ A friend with experience of running scenario-building workshops in Tanzania and elsewhere warned me of this, using that specific phrase.

statistics and facts on modern agricultural techniques and improved cattle breeds generated by projects they had been involved in.

As a result, the data generated as part of this two-day group conversation were interesting, rich and challenging, but did not result in the defined and descriptive future visions which would have made this exercise, by definition, a scenario-building workshop. Instead, I consider it to be an in-depth group discussion, centred on desirable and undesirable futures for the Kilombero Valley as envisaged collectively by regional conservation and planning stakeholders. While the original intention of the workshop as a scenario-building exercise did not play out, some of the objectives were still fulfilled. For example, one strength of scenario building still present in this future-oriented group discussion was eliciting *common* desires held among this group (Cameron and Potvin, 2016). The future-oriented discussions taking place in this workshop probably most closely aligned with Mahmoud et al's (2009) definition of anticipatory scenarios: "based on different desired or feared visions of the future that may be achievable or avoidable if certain events or actions take place" (p800).

4.4.5.2 Sampling strategy and conducting the workshop

Respondents were selected based on their positions as stakeholders in planning or conservation in the Kilombero Valley area. Attendees included representatives from both Kilombero and Ulanga district councils, the Kilombero Game Controlled Area, and other locally-based stakeholders with some involvement or interest in corridor projects. Please see Appendix 1 for more information on workshop attendees. In the chapter in which this data is used (chapter 6), although participants are sometimes quoted directly, individual alphanumeric markers are not used to identify individual participants. Please note that some workshop attendees had also been interviewed individually for semi-structured interviews.

The process of scenario building was explained to participants at the beginning of the workshop in the form of a short presentation. I led and convened the workshop, and a research assistant observed and took notes, which were sent to me in the days following the workshop. As mentioned in section 4.4.5 above, the process for developing contrasting scenarios, as originally envisaged, was not quite followed. However, participants worked well to identify a system and timeframe under consideration (the Kilombero Valley area over the

next 25 years) and one assumed driver of change (population growth and immigration) determining how this system would change over time. They then imagined two ‘opposing’ visions: the central government prioritising conservation (which they defined as development driven by conservation-friendly activities), and the central government neglecting conservation entirely. These two visions were considered desirable and undesirable versions of the future for the Kilombero Valley area respectively. In the event, however, the conversation was dominated far more by the former, desirable vision, than by the latter undesirable one.

4.4.6 Secondary methods

4.4.6.1 *Observation*

This work is ethnographic to the extent that it involved continuous exposure and engagement, not to a geographically or temporally bounded “research setting” (Schensul et al., 2012, p. 2), but rather to a concept – the corridor, which I ‘followed’ through a conservation landscape. As such, I characterise this work as semi-ethnographic, allowing for ‘exposure’ to the corridor through opportunistic observation of specific activities and conversations pertaining to the corridor, across a field site that was quite dispersed.

Specific instances of observation occurred through my attendance at various meetings and workshops organised by the Kilombero and Lower Rufiji Ecosystem Management Project (KILORWEMP – an important conservation planning project ongoing in the Kilombero Valley at the time of data collection – see Table 3.3 on p72) at village, regional and national scale. Meetings are not merely sites for facilitating interactions of interested parties. They are also sites of struggle, both over action to be taken, and over meaning-making, and as such they shape the structure and organisation of conservation itself (MacDonald, 2010, p258). MacDonald argues that researchers observing meetings witness processes of knowledge transmission and translation, as well as how particular ideas are challenged or changed, or how they gain traction.

I also include transect walks within my approach of ‘light’ ethnography. One transect walk was conducted with my research assistant at the outset of fieldwork. This was a five-hour hike

‘in’ a corridor area ‘shared’²⁴ by my field site villages, through miombo woodland, farms, and scattered settlements. I also explored by bike, guided by my research assistant, to see teak plantations and ‘natural’ forest corridors on the outskirts of villages. Such exploration was invaluable to my research, allowing me to familiarise myself with the terrain of a (disputed) corridor space, to take photographs, and appreciate the size, scale and aesthetics of the spaces in question.

By attending meetings and familiarising myself with material corridor landscapes, I am following’ the corridor concept in various guises and manifestations – at different scales, material and discursive – as a way to try and make connections between community-level conservation activities and the practice and presentation of conservation by international conservation organisations. Such a multi-sited ethnography is needed in political ecology, given its emphasis on multiscalar processes in shaping outcomes on the ground – something which lengthier, more fine-grained place-based stays might miss.

4.4.6.2 Key documents

Document review formed a hybridised secondary data and contextual work for my thesis, as opposed to a specific method in itself. Key documents which informed my analysis are included as a list in Appendix 7.

4.5 Positionality: situating myself, and others, in my research

4.5.1 Myself

All researchers are necessarily and unavoidably gendered, racialised, situated within a culture or cultures, and occupying a particular categorisation of class; all encounters between people are unavoidably power-laden. This is especially evident when those with more economic and cultural capital are studying those with less (Hoggart et al., 2001), as was generally the case during this project. While one must accept that one “cannot ever fully recognize or represent [one’s] own positionality” (Clope et al 2004, p129), I believe that my whiteness placed me both as an outsider, and provided me with privileged access to a range of research participants across Tanzania’s socioeconomic spectrum – from subsistence farmers to managers and directors. My status as privileged outsider meant that I found respondents

²⁴ This is disputed – as will be the topic of chapters 8 and 9.

were often both accessible and keen to explain, believing (often correctly) that my understanding of a given topic of conversation was limited. This was particularly helpful in the context of a research project which seeks to understand the corridor phenomenon through the prism of other people's perspectives.

Intellectually, given my emphasis on relational ontologies (i.e. ways of apprehending the world which emphasise the connections and blur the distinctions between the categories natural and the social, as discussed in section 2.5) and on the constant force that nodes in assemblage exert on all other nodes, it would be remiss not to acknowledge my own role in perpetuating and contributing to the corridor assemblage in Tanzania. If I propose that assemblages are responsive, dynamic and evolving, and connected, then I cannot claim to be separate from it myself; in the way that it is impossible to obtain a view from nowhere, it is also impossible to place oneself outside of an assemblage.

4.5.2 Others

Respondent IN67 requires special consideration in terms of positionality. He was one of the first people I met during my pilot trip, introduced by a friend of a friend, and we had some informal conversations that gave me important context from which to develop my initial research plans. He had much local knowledge, being born in Kilombero District and resident in Kichangani village – one of my field site villages in Ulanga district – for a long time. He had international conservation practice experience, having worked for Frontier in Tanzania, Kenya and Zambia. He also runs his own one-man conservation NGO/voluntourism outfit, no longer having a working relationship with Frontier.

This meant he was, in many ways, ideally placed to work as a research assistant. He was experienced, knowledgeable, confident and fluent in English. However, I was initially reluctant to employ him in this capacity, knowing his particular experiences with and knowledge of conservation in the Valley (especially with Frontier) would also make him an interesting and important interviewee. As such, I was initially burdened with the desire to preserve his integrity, or even 'purity', as a *respondent* within my research.

I started out data collection working with a different research assistant, who was recommended to me by a contact at Sokoine University of Agriculture. This assistant was intelligent, diligent, and had a degree in a relevant field. He also did not have any connection with Kilombero or Ulanga districts, which I perceived as a desirable quality. However, once it became apparent that I would require the help of more than one assistant in completing household surveys, I was prompted to reconsider my original stance on IN67. In need of assistance fairly quickly, and knowing that IN67 was available and qualified – as well as familiar with the villages where the surveying would take place – I decided to ask him to work as my research assistant, and to work out a ‘solution’ to his ‘compromised integrity’ as a research participant.

I attempted to mitigate against the possible ‘corruption’ of data by leaving my interview with IN67 as late as possible in the data collection process – his was the penultimate interview I did before leaving Kilombero. Leaving his interview to this late stage meant that his experiences of working with me on a corridor project could be discussed, if relevant, and that this would add a layer of richness and reflexivity to my data. In the thesis, footnotes are used to contextualise data provided by this respondent, where necessary. Ultimately, though, it would be a fiction to try to position IN67 as either a research assistant or a respondent, when in reality he is both. The knowledge he helped me generate permeates the thesis as a whole.

No other respondent had a ‘mixed’ positionality in quite the same way as IN67. However, considering this assistant/respondent’s positionality speaks to positionality more generally. IN67’s was explicitly so, but all respondents have multifaceted identities, with perspectives that are at once personal and professional, and impossible to tease out discretely.

I would like to finish this section by emphasising the importance of the help and advice given, and suggestions and contributions made, by my research assistants Sebastian Ngasoma, George Ngatena and Alaturpoke Sanga – not only in assisting me to navigate the Tanzanian research landscape sensitively and respectfully, but also as vital contributors to the knowledge generated and presented in this thesis.

4.6 Ethical considerations

4.6.1 Obtaining ethical approval; maintaining ethical behaviour

This project received ethical approval from the Department of Geography. This project was also subject to an ethical audit, having been randomly selected by the ESRC. This audit took place in May 2018, roughly halfway through data collection. I provided comprehensive information on obtaining free and prior informed consent from participants, training for research assistants to be able to work effectively and ethically in my absence, secure data storage, and my experience of the Tanzanian research permission process.

However, ensuring that research was conducted as ethically as possible did not end with receipt of ethical approval, nor with passing ESRC's ethical audit. It required evolving sensitivity to my surroundings as I learnt more about Tanzanian culture, and an appreciation of my relatively powerful position as a white, well-educated European woman with connections to an elite university. One sobering lesson was accepting that my research was inherently and unavoidably extractive. My former understanding of what made research extractive had been simplistic, and my insistence that my own research would be minimally extractive – based on a perception that my data topics were not sensitive – was naïve. I experienced only one instance of a participant refusing to talk to me unless I was able to offer him, or the people he farmed with, some kind of tangible help. That this only happened to me once during fieldwork cast my other, more 'positive' experiences in a new light, prompting me to wonder whether respondents who had been more welcoming and approachable simply felt unable to refuse, or uncomfortable showing discomfort.

Relatedly, while I diligently approached villages 'correctly' with formal introductions to the village chairman and village executive officer, I began to suspect that my earnest attempts to show I followed process – something very important in Tanzanian bureaucratic culture – by showing them my state-approved research and residency permits could have, again, made them feel unable to refuse to work with me. I could not have gathered this more nuanced appreciation for doing research ethically in Tanzania without making those initial mistakes – a Catch-22. I do not believe there is a simple answer to this quandary.

I have so far been unable to return to my village-based field site(s) to present findings or see research participants again, due to a combination of personal- and pandemic-related reasons. This is something that has played on my mind throughout my writing up period, and which I hope to remedy in the coming years. Ideally I would return to the offices of Kilombero and Ulanga district councils, to leave them with a short report of the results of my household survey and workshop data, and the practical implications of my research, as outlined in section 10.2. I would also like to hire my research assistant, IN67, to conduct a short workshop or presentation on my research findings in Swahili – particularly the results of household surveys providing insight into people’s attitudes towards wild animal presence, livelihoods and land use planning – which would be held at Kichangani and Ikungua village offices. This could also be organised remotely if I am unable to travel to Tanzania.

4.6.2 Anonymity and consent

To obtain consent, English-speaking interviewees were provided with an information sheet (see appendix 3). If respondents accepted being interviewed, I invited them to tick the boxes where applicable, indicating the level of anonymity they would prefer (discussed again below). I then hand-wrote his/her name and the date and location on the sheet of paper, and left it with them. An adapted information sheet was used to obtain consent for attendees at the regional stakeholder workshops and for Q. For interviewees that did not speak English, a translated information sheet was used to obtain consent (see appendix 4). The consent sheet was used by my research assistant/translator at the beginning of the interview to guide the discussion around consent and anonymity. I would then leave the respondent with my card, which had my Tanzanian mobile number written in pen. This meant respondents would have the easiest means of contacting me with any concerns. Research participants were offered example levels of anonymity and were assured that the level they chose would be the *minimum* level applied. Often respondents stated a preference to have their data represented using their full name and title – I informed them that I would take their request into consideration when writing up, but that this might not be possible. In the end, for the sake of consistency, I decided to use alphanumerical codes to denote respondents, other than in situations where a) it is apposite to be aware of some specific aspect of the respondent’s identity, and b) where the respondent has given express permission for their full name to be used.

For village level workshops and household surveys, research assistants explained to participants the purpose of the research, how it would be used, and that all contributions would remain anonymous.

4.7 Linguistic considerations

I completed 22 hours of classroom-based Swahili tuition at the University of Cambridge Language Centre during Lent Term 2017. I then completed 200 hours of intensive Swahili language training, usually one-on-one, at Swahili Dar Language School in Dar Es Salaam, September to December 2017. My Swahili improved significantly during this time, enabling me to travel confidently alone throughout Tanzania during the course of my data collection, and to conduct (basic) interviews with interesting participants when my research assistant was not present. Nonetheless, the majority of interviews conducted in Swahili were done via my research assistant, with the knowledge that my Swahili was good enough that I would be able to tell at least if something was being grossly misrepresented, or information was being left out. My research assistants did not let me down in this regard. I embarked on my language learning appreciating that a knowledge of Swahili would not grant me an automatic understanding of my respondents' experiences, but that proficiency in the language "may be a step towards shifting the balance of power between researchers and researcher, and may help generate insights that could otherwise be ignored" (Watson, 2004, p. 59).

4.8 Conclusion

This chapter has described the methods I used to address the questions posed at the outset of this thesis, to explore the discursive elements of the corridor through a broadly-defined multi-sited ethnography of the corridor concept, in which I position myself at different points within the corridor assemblage to inform my understanding of the whole. The thesis now presents the data gathered using these varied methods across five empirical chapters, which are set out across three parts, broadly corresponding to the national, subnational, and local levels. I deploy different methods for appropriately addressing the 'corridor question' at each level of administration and abstraction.

Part I: The abstract corridor

Part I comprises one empirical chapter. In this chapter, I explicate the Tanzanian corridor for conservation in the abstract, through an exploration of professional and expert perspectives. This chapter provides a ‘baseline’ understanding of the kind of ideas about people and nature that underpin perspectives on wildlife corridors in Tanzania – what they are for, and what they can achieve. This chapter informs my understanding of the corridor as it broadly corresponds to the national scale – how the corridor idea permeates through professional conservation communities – allowing me to build on this through explications of the corridor at the regional and local scale, as follows in Parts II and III respectively.

Note that a version of the following chapter is currently submitted for publication in *Geoforum*, accepted subject to minor revisions. It was co-authored with my supervisor Dr Chris Sandbrook. I conceptualized the paper; developed the methodology; collected and analysed the data; and wrote, reviewed and edited the manuscript. Dr Sandbrook assisted with the conceptualization and methodology, and with reviewing and editing the draft. He also guided me through the submission process. The version below differs from the version accepted by *Geoforum* in three significant ways: first, it uses the singular pronoun ‘I’ as opposed to the plural ‘we’; second, it refers to other material in this thesis; and third, some of the material appearing in the conclusion of the paper manuscript appears instead in the conclusion chapter of this thesis.

5 Beyond connectivity: expert perspectives on conservation corridors

5.1 Introduction

As established in Chapter 1, there is an observable trend in conservation towards connectivity as a means of complementing or supporting protected areas as ‘islands’, and corridors are presented as the primary way that connectivity can be achieved for wildlife – by maintaining genetically healthy species populations, reducing the risk of local extinction, facilitating migration in pursuit of resources, or providing escape in times of shock or stress (Costanza and Terando, 2019; Hilty et al., 2006, 2006; Kremen and Merenlender, 2018; LaPoint et al., 2013). The popularity of corridors is reflected in professional and policy-related conservation discourse, which collectively presents corridors as ‘natural (read: good), and suggests a level of endorsement in ‘mainstream’ conservation which belies debate and disagreement on corridors within the scientific community.

At the interface between globally circulating discourses about conservation corridors and the practical outcomes of corridors on the ground lie professional conservation stakeholders who are involved in their implementation. Recent scholarship has emphasised the importance of in-depth research with conservation professionals to enhance understanding of how and why conservation actions occur in particular ways (Kiik, 2018; Larsen and Brockington, 2017; Sandbrook et al., 2013). Some of the literature discussed in chapter 1 begins to address this with regards to corridors: Bluwstein and Lund (2016) allude to the complexity of key actors’ decision-making processes in a Tanzanian connectivity area; Wyborn (2015) uses the concepts of boundary objects²⁵ and narratives in science to show how conservation practitioners use the corridor concept to pursue practical or professional benefits in Australia; and West et al (2016) use Q methodology to explore corridor success as understood by a diverse group of respondents in South Africa.

²⁵ As discussed in section 1.4.1, a boundary object is an entity, concrete or abstract, which can comfortably accommodate diverse meanings for different people, and which therefore facilitates cooperation between social groups without them having to actually reach consensus (Star, 2010; Star and Griesemer, 1989). Goldman (2009) uses this concept to explore cooperation and contestation in a wildlife corridor project in northern Tanzania.

Collectively, Wyborn and West et al's respective explorations of corridor perspectives support Goldman's assertion that "[when] people talk about corridors they are often not talking about exactly the same thing" (2009, p. 339). However, while these studies have provided insight into specific elements of perspectives on corridors and connectivity in conservation, this chapter aims to build a more holistic understanding of how professionals perceive corridors in the abstract. I do so by building upon Goldman's theorisation of the corridor as a boundary object, fleshing out variations of the corridor story as 'told' by conservation professionals. In this chapter, the enquiry is shaped by guiding questions: What do conservation stakeholders think corridors are? A tool, a naturally-occurring phenomenon, or both? To what extent do they believe that people and/or wildlife can and should be manipulated when 'making' a conservation corridor? What do they believe corridors can and should achieve? What are the negative impacts of corridors, if any, and which are deemed to be acceptable? In this chapter, I use Q to structure this in-depth exploration of the different ways in which the corridor boundary object is "embodied, voiced, danced and named" (Star, 2010) by key actors.

I reveal three distinct perspectives, which I call Righteous Corridors, Imposed Corridors, and Instrumental Corridors. Conservationists aligning with each of these perspectives see the corridor differently: as a remnant of a formerly wild Tanzania, as an unimaginative and ultimately unhelpful manifestation of 'business as usual' conservation, and as an imperfect but important tool for achieving people-friendly ecological connectivity. Across these three perspectives there are interesting points of divergence, as well as points of consensus, and shared ambiguities, which I outline in this chapter and interpret using the concepts of boundary objects (after Star and Griesemer, 1989) and discourse coalitions (after Hajer, 1995b, see section 2.2.1).

I begin in section 5.2 by explaining the principles of Q methodology and why it is appropriate for research in professional perspectives on conservation corridors. In section 5.3 I present each of the perspectives emerging from the Q analysis. Section 5.4 is the discussion section, in which I explain in more detail my use of the boundary object and discourse coalitions in my analysis of the data, and suggest some tentative theoretical and practical implications.

5.2 Using Q methodology for research into conservationists' perspectives

Q is a method of by-respondent analysis which, using both quantitative and qualitative data and analysis, enables the identification of clusters of shared perspective in a group. In this thesis I use Q to delve deeply into conservation stakeholders' perspectives on the meaning and materiality of the *abstracted* corridor for conservation. Inviting respondents to invoke the corridor in the abstract, as opposed to with reference to a particular place or project (as in previous studies), enables a fuller understanding of the ideal or imagined corridors which collectively form the corridor boundary object. Q is explicitly not an objective mode of enquiry (Robbins and Krueger, 2000), but rather, as mentioned in section 4.4.1, is an appropriate tool for exploring discourses as expressions of temporarily stabilised truth(s).

Q entails the statistical analysis of Q-sorts (sets of statements on a topic of concern, arranged by respondents on a Likert-style grid) arranged from a Q-set (representing a body of discourse on a topic of concern), and parallel qualitative analysis of corresponding interview data, to draw out factors (clustered perspectives). We can think of individual Q-sorts as expressions of subject positions which, when subjected to statistical analysis and supported by both qualitative data and demographic information, allow researchers to identify perspectives which are latent within the dominant discourse (Watts and Stenner, 2012). This chapter accepts as a central premise the contention that "having taken up a particular position as one's own, a person inevitably sees the world from the vantage point of that position and in terms of the particular images, metaphors, story lines and concepts which are made relevant within the particular discursive practice in which they are positioned" (Davies and Harré, 1990). This aligns with Watts and Stenner's explanation of conceptual space in Q, for which they use the analogy of a lecture theatre (2012, p. 116). In the analogy, each individual in the lecture theatre has their eyes trained on the same 'target', and each has unique but legitimate viewpoints, with those sitting closer together more likely to have a similar viewpoint. The aim of the Q analytical process is to identify and take up positions where groups of individuals cluster together, in order to understand more about their perspective on the object of enquiry.

I use Q to enhance understandings of the conservation corridor as a 'new' and proliferating conservation space, investigating conservation stakeholders' perspectives on corridors and,

through this, their more deeply held beliefs about nature. In other words, the study illuminates professional perspectives on both the *value* of the corridor, as well as the *values* underpinning those perspectives.

5.2.1 Compiling the Q-set

The Q-set of 40 statements used in this study was selected and honed from an initial Q concourse of 100+ statements related to Tanzanian conservationists' perspectives on the meaning and materiality of conservation corridors. It is standard practice in Q to construct a Q-set using a combination of documentary and interview data (Watts and Stenner, 2012; see also Robbins, 2006; Sandbrook et al., 2011). My statements were drawn from both primary data collected as part of this PhD project (at local level: household surveys conducted in two villages where corridor areas have been identified or zoned; at local, regional and national levels: semi-structured interviews; observation; village and district-level workshops; informal conversations)²⁶ and secondary data (conservation biology literature; reports; legislation; news items; other miscellaneous content from corridor-related projects). Statements for the final Q concourse were crafted to accurately but succinctly speak to the issues addressed in the literature reviewed in chapter 1, covering viewpoints on what corridors are, what corridors can achieve, and with what impacts.

5.2.2 Selecting respondents

Q is neither suitable nor intended for making inferences about wider populations: rather, it is a tool for alerting researchers to the *existence* of perspectives latent within a group or groups, and to points of consensus and divergence in those perspectives (Robbins, 2009; Watts and Stenner, 2012). As such, 'representativeness' in Q studies is attained not by recruiting a certain number of respondents, but rather by selecting respondents who are likely to hold the range of perspectives present in the target group on the topic under investigation (Brown, 1980; Ramlo, 2016; Watts and Stenner, 2012). To ensure a diversity of opinions, we recruited respondents from different nationalities, and with a range of professional experiences in conservation in Tanzania: as practitioners, researchers or managers; with direct or indirect practical experience of conservation or conservation-related land management; whose work

²⁶ As mentioned in section 4.4.1 of the methods chapter, note that the primary data listed was collected *before* the Q study took place, and as such informed the development of the Q concourse and Q set.

leans towards either conservation or development, or combines both; and whose areas of expertise are varied (economics; wildlife management and natural science including ecology; spatial technology; social science; management; agriculture). Q-sorts were conducted by 21 participants – four women, the rest men²⁷ – who were selected purposively (drawing on contacts made during the collection of primary data) and using snowball sampling. Taking this “very *strategic* approach” to participant recruitment increased the likelihood of participants expressing “a particularly interesting or pivotal point of view” (Watts and Stenner, 2012, p. 71, emphasis in original). More demographic data on participants, as well as information on their educational backgrounds and professional experiences with connectivity conservation and/or corridors, can be found in Appendix 2.

Respondents were selected purposively (drawing on contacts made during the collection of primary data) and using snowball sampling. I stopped recruiting for respondents when it was felt that saturation point had been reached – i.e. that there were no new or strongly divergent perspectives on the topic of concern that had not already been expressed by participants; and that all perspectives uncovered during previous primary and secondary data collection over the previous 7 months had been covered. This approach is in line with Q as a ‘qualiquantological’ method (Stenner and Stainton Rogers, 2004): a hybrid mode of enquiry with interwoven qualitative and quantitative elements, which encourages researchers to use skills traditionally associated with qualitative data collection methods – e.g. taking into consideration both what is said and what is unsaid, paying attention to context, using intuition – to create conditions in which a contextually appropriate and useful statistical enquiry can take place (Ramlo, 2016; Ramlo and Newman, 2011; Watts and Stenner, 2012). In this chapter, respondents are anonymised and referred to using numerical identifiers following the format Qlxx.²⁸

²⁷ Professional and managerial conservation in Tanzania tends to be dominated by men, and as such this is a reasonable sample in terms of gender representation.

²⁸ Note that there was no overlap between participants of the Q study and attendees of the regional stakeholder workshop discussed in section 4.4.5. However, as Q was the last method I used, some Q participants had previously taken part in semi-structured interviews separate from the Q study. Whether the data was from a Q-sort or a semi-structured interview or is made clear in the thesis through the use of the QI- or IN- prefix used to denote individual respondents – as such, in this chapter, all respondents are referred to using the prefix QI-. Please see Appendix 1 for an overview of all respondents and whether they were interviewed as part of the Q study, separately, or both.

5.2.3 Conducting the Q-sorts and interviews

Q-sorts took place in the cities of Dar es Salaam, Arusha, Iringa and Morogoro, where offices of professional conservation stakeholders working at a national or strategic level tend to be located. This meant that participants in the Q study were informed of overarching conservation and planning issues in Tanzania, and issues pertaining to connectivity conservation in general, in accordance with their various areas of expertise. Their understanding of the corridor in the abstract was therefore informed by their experiences at this level. Q-sorts were conducted in English as the language common to all participants. Given that our objective was to uncover perspectives of high-level professional conservation stakeholders with a national perspective, exclusion of those who did not speak English should not compromise the integrity of this particular study, given the dominance of the English language in both producing and circulating conservation knowledge at the global scale (Pettorelli et al., 2021). Additionally, the primary and secondary data that informed the Q-set statements were primarily in English. Acknowledging that translation invariably involves some loss of meaning or interpretation on the part of the translator (Temple and Edwards, 2002), keeping statements in English was expedient both practically and intellectually.

Respondents were informed that I was a social scientist researching different perspectives on corridors for conservation in Tanzania for my PhD, and were invited to complete a ranking exercise in which they would arrange the statements from my Q set on a grid ranging from -5 to +5, ranging from 'least like my perspective' (-5) to 'most like my perspective' (+5). Respondents were also invited to be interviewed during or after sorting; one respondent declined. The time spent completing Q-sorts and conducting corresponding interviews varied from participant to participant, determined by participants themselves, lasting from around 30 minutes to over two hours. All respondents were encouraged to explain their Q-sorting process. In some instances the sorting process was audio-recorded; where this was not possible, typed notes were taken.

5.3 Results and analysis

PQMethod²⁹ was used for factor extraction (using centroid factor analysis) and factor rotation, to identify defining Q-sorts and to produce a factor array – or idealised Q sort – for

²⁹ Free download Q analysis software

each factor. In choosing an appropriate factor solution (i.e. how many factors to extract from the data), I drew from both statistical results and supporting qualitative data. I avoided arbitrarily dismissing factor solutions based solely on statistical criteria such as eigenvalues or variance explained, which can be a particular hazard when working with a small number of respondents (Brown, 1980). I began with Watts and Stenner's (2012) rule of thumb of extracting a factor for every 6 participants. This gave a three-factor solution as a point of departure. Two-factor and four-factor solutions were also tentatively explored.

A two-factor solution yielded one 'main' factor and one splinter factor. A three-factor solution effectively split the 'main' factor into two distinct sub-factors. A four-factor solution explained only marginally more variance³⁰ than did a three-factor solution (54% versus 52%), and resulted in one splinter factor and three factors with a high level of correlation which were difficult to meaningfully distinguish from one another when analysed qualitatively. As such, and based on preliminary analysis and factor interpretation, the three-factor solution resonated more clearly with our intuitive understanding of the perspectives at play in the data. Watts and Stenner encourage researchers to take this abductive logic approach, in which researchers use contextual knowledge to inform the statistical-analytical decision-making process (2012; see also Brown, 1980).

PQMethod was used to identify defining (significantly-loading) Q sorts for each factor (see Appendix 8). A standardised factor array – or 'idealised' Q sort – with distinguishing statements and factor ranks was generated for each factor (Table 5.1). PQMethod produces factor arrays based on underlying z-scores reflecting how each factor values each Q statement (Watts and Stenner, 2012). The scores are then standardised to allow comparison between factors, and converted to reflect the Likert-style values from -5 to +5. The standardised factor arrays were the primary resource for the interpretation of each factor, which followed Watts and Stenner's (2012) 'cribsheet' approach in which, for each factor, researchers focus attention on those statements that rank higher and lower than in any other factor. This

³⁰ PQMethod identifies and 'extracts' portions of shared meaning when extracting factors. A higher proportion of variance indicates that a more areas of regularity, or patterns of similarity – areas of shared meaning – have been accounted for in the factors.

compels the researcher to consider all statements in turn, and in comparison with the other statements in the factor array, resulting in a holistic interpretation of factor meaning.

No.	Statement	F1	F2	F3
18	Corridors for conservation are an international idea imported into Tanzania	-4	4*	-2
4	It is essential to the success of corridors that they have clearly demarcated boundaries	2*	-5*	-1*
8	Conservation corridor projects are used as a means of raising funds from international donors	-4	2*	-3
17	Ordinary Tanzanians will bear the heaviest burden of the establishment of newly established corridors for conservation in Tanzania	-1*	5*	1*
28	Establishing individual corridors at the village level is an important element in achieving the overall objective of connectivity between protected areas in Tanzania	-1*	-4*	1*
25	Lack of political will has been the biggest barrier to successfully protecting wildlife corridors in Tanzania so far	0*	3*	-2*
29	Corridors for conservation cannot succeed without the support of the communities living alongside them	3	0	5*
10	It is not easy to define what a wildlife corridor is	-3	2*	-2
37	Wildlife corridors could have ecologically harmful impacts	-3	1*	-3
2	Corridors are a crucial element to an integrated landscape approach that benefits both people and wildlife	5*	0	2
14	Corridors for conservation are a space-saving conservation strategy	-2*	3*	0*
36	Elephants are the most important species when it comes to conservation corridors in Tanzania	-1	1	-4*
30	Wildlife corridors are essential for the long-term health of Tanzania's economy	2	-2*	2
6	People are more flexible than wildlife, so people should make way for corridors	1*	-2	-1
15	Corridors for conservation are a tool for reducing human-wildlife conflict	1	-1*	4
23	The government should never take land for conservation corridors against the will of its current owner	-2*	3	0
33	Maintaining connectivity for wildlife between protected areas in Tanzania is key to keeping some 'wild' areas on the planet	1*	-2	0
7	Wildlife corridors in Tanzania are undermined because too much attention is given to the rights of people	-2	-4*	-1
16	Tanzania's future conservation success depends on connectivity between protected areas	4	1	4
20	Protecting wildlife corridors in Tanzania is an issue of global importance	3	0*	3
31	Some people will inevitably lose out when new wildlife corridors are established in Tanzania	0	1	-1
32	Even though we cannot be sure that establishing corridors is a good conservation strategy, it is still better to protect corridors now, than to risk losing something potentially important	1*	-1	0
39	The use of 'hard' fencing around wildlife corridors in Tanzania should be considered	-2	-3	0*
27	Well-managed and implemented land use planning across all scales is key to wildlife corridors	4	0	3
24	Elected politicians are key players in determining the success or failure of wildlife corridors	0*	3	2
22	Lack of control over the movement, settlement and livelihood activities of Tanzanian people within Tanzania has been a major challenge to corridors	0	0	3
3	It is not necessary for local people to understand the ecological importance of wildlife corridors	-5	-3	-5
1	Wildlife corridors in Tanzania have been 'created' as a result of human activities fragmenting formerly open landscapes and disrupting the free flow of animal movement	0	-3	-3
21	No human activities whatsoever should be permitted within wildlife corridors	-1	-3	-4
26	Even if a wildlife corridor can only be partly protected, it is still worth the effort to protect that part	2	0	0
19	Some wildlife corridors are more important than others	-1	-1	1
12	Agricultural growth corridors like SAGCOT can potentially indirectly benefit wildlife corridors in Tanzania by introducing efficient, environmentally friendly and space-saving agricultural technology to smallholder farmers	0	0	-1
34	Wildlife corridors must bring tangible benefits to the people that live alongside them	2	0	1
35	Wildlife corridors in Tanzania should help people feel more connected to nature	1	0	0
5	Wildlife corridors are naturally occurring phenomena which cannot be artificially created	0	-1	0
13	The private sector will have an important role to play in the future of Tanzania's wildlife corridors	0	2	2
9	Conservation corridors can divert attention and resources from other important conservation strategies	-3	-1	-2
38	Control of population growth in Tanzania is key to the success of conservation corridors in the future	-1	-1	-1
40	It is important that wildlife corridors bring benefits to people at the individual or household level	1	1	1
11	The introduction of improved livelihood techniques and technology to the people who live alongside wildlife corridors is essential	3	2	1

Table 5.1 – Standardised factor arrays for Factor 1 (F1), Factor 2 (F2) and Factor 3 (F3). Statements are ordered by disagreement to consensus based on variance across factor z-scores * = distinguishing statements at significance $P < .01$

5.3.1 Factor interpretation

There were areas of significant divergence between all three factors. Below I explicate each factor separately, and draw attention to key points of comparison where appropriate.

5.3.1.1 Factor 1: Righteous Corridors

“You will displace the people, you will relocate the people, and these people you have to make sure their livelihoods are well rehabilitated. No problem”, respondent QI02

Eleven respondents loaded significantly onto Factor 1 (F1), which we call *Righteous Corridors*. F1 respondents have a range of backgrounds, but most are Tanzanian (9) and most have a background in ecology or an environment-related science (7). F1 is characterised by a deep-seated faith in the efficacy of conservation corridors and their importance to the future of conservation in Tanzania, with less concern for defining corridors, determining how they should be done, or by whom.

This factor places emphasis on the clear demarcation of corridor boundaries (S4, +2) planned at the landscape level (S27, +4), but rejects the use of hard fencing (S39, -2). This suggests that the division of human and wild spaces is important to this factor, perhaps indicative of an emphasis on structural over functional connectivity (as discussed in section 1.4.1). It also suggests an aversion to any connectivity-related intervention or human activity which would potentially influence *animal* movement; where fencing would be for wildlife to respond to, boundary demarcation would be for *people* to respond to. This is consistent with F1’s belief that people are more flexible than wildlife and as such should make way for wildlife (S6, 1+), its emphasis on sensitising local people on the importance of corridors (S3, -5), and its relative amenability to the central government claiming land for conservation corridors (S23, -2). The F1 perspective therefore generally positions people as a destructive force which should potentially be removed in the interest of achieving ecological connectivity: “Because, you know, whether these people are there, or not, that is basically a wildlife corridor. [...] The wildlife corridor was there. What [people] have done is just blocked this wildlife corridor” (QI02); “you know, elephant does not forget the place he used to pass...today he uses the same, tomorrow he uses the same” (QI03). F1 appears reluctant to accept that corridors may

place burdens on ordinary people (S17, -1). This is consistent with F1's perception of people as more flexible and more destructive than wildlife – a position which potentially delegitimises the grievances of those who would be inconvenienced by corridors for conservation.

Relatively little emphasis is placed on the potential for wildlife corridors to alleviate human-wildlife conflict (S15, +1). This, combined with F1's belief that part protection of wildlife corridors is still worth the effort (S26, +2), and its rejection of the idea of the corridor as a space-saving conservation strategy (S14, -2), would suggest that F1 values corridors for conservation *intrinsically* (for what they *are*) as opposed to *instrumentally* (for what they can *achieve*). For this factor corridors are not valued as strategically useful (S8, -4), nor as something that has 'arrived' into Tanzania from elsewhere (S18, -4). The 'who' of corridors is also little emphasised in F1; neither elected politicians (S24, 0) nor political will (S25, 0) are emphasised by this factor. F1 therefore seems to downplay the role of people and the extent to which their personal motivations, conservation-related or otherwise, might shape connectivity or corridor-related outcomes.

Considered within the context of *Righteous Corridors'* wider factor array, this factor's strong conviction that corridors can benefit both people *and* wildlife (S2, +5) could be interpreted as somewhat idealistic. F1's factor array suggests an amenability to boundary demarcation and central management of conservation land which somewhat undermines its strong belief that corridors can benefit both people *and* wildlife (S2, +5) and to achieve both conservationist and developmentalist objectives. This suggests a potential lack of engagement with the messy practicalities and politics of real-world conservation which, despite the seductive promises of the 'win-win' discourse in conservation discussed in section 2.2.2, almost inevitably entails some kind of trade-off. This (perhaps wilful) idealism, aligned with the new corridor regulations, could prove a potent combination: we are faced with a 'new' conservation strategy which is widely and intuitively appealing, ill-defined, supported by many professional conservationists – and now state-sanctioned. Redford et al (2013) caution against 'new' approaches which purport to solve all issues; F1's firm but idealistic belief in the corridor's capacity to achieve both conservation and development objectives, and its reluctance to engage with conservation's trickier realities, suggest F1 is susceptible to exactly this. This

resonates with scholarship on win-win discourses in conservation, which often signal a lack of engagement, wittingly or otherwise, with the realpolitik of ‘doing’ conservation on the ground (Adams, 2017; Büscher and Dressler, 2007; Grandia, 2007). F1’s apparent idealism might also be understood within the framework of systemic forces which compel professional conservation actors to engage in particular discursive practices in order to secure further funding, as discussed in section 2.2.2.

5.3.1.2 Factor 2: *Imposed Corridors*

“Do you have corridors in Europe? I think it's a westernised idea. I think it was a westerner's idea. And I think the more we keep pushing it the more we're disconnecting conservation from the local communities”, respondent Q12

Two respondents – a Tanzanian academic with a background in social science on conservation, and a Tanzanian forest expert working for a world-renowned conservation organisation – loaded significantly onto Factor 2 (F2), *Imposed Corridors*. The respondents loading significantly onto this factor interrogate not only the corridor concept itself but also the very foundations on which the concept is built, and perceive a potential for corridors to act as vehicles for conservation tropes and threats which have persisted in Tanzania.

Unlike F1, F2 emphasises influential people as key in the configuration, constitution or creation of corridors (S25, +3). This factor recognises the significance of personal and/or professional motivations in shaping conservation decision-making in Tanzania, and how in turn these decisions can be shaped by the prevailing discourses circulating at the time: “people who make mistakes and so on [...] they're not the ones who will be held responsible in the future. Because they will not be there.”; and “[an] idea can become a policy. It can become so dominant. And that idea can survive. As long as people and the funders are convinced that this is relevant, and it plays part in bringing money” (Q12). This suggests that this factor is mindful of the co-constitution of scientific knowledge and practice, the complexity of decision-making, and the politics of the circulations of ideas within conservation.

This is consistent with F2's belief that engaging with the corridor idea can be politically or strategically useful, e.g. for raising funds (S8, +2). This factor does not conceive of corridors as having a strong foundation in Tanzanian experiences *of or with* the non-human world (S18, +4), neither does it perceive corridors as being easy to define (S10, +2). Contextualised by statements such as that quoted in this factor's subheading, this factor acknowledges the power of conservation rhetoric, the role of influential actors, and the ways in which discourses can circulate and gain traction. F2 appears to recognise the power of the corridor idea as a kind of conservation currency, through which multiple visions for conservation connectivity can be communicated, exchanged and leveraged; in short, F2's perception of the corridor is consistent with the idea of the corridor as a boundary object (Goldman, 2009).

This factor rejects forcefully the idea that people have been prioritised over conservation in Tanzania (S7, -4). Alongside this factor's strong belief that the central government should not take land for conservation corridors against the will of its current owners (S23, +3), we surmise that F2 fears that corridors for conservation will ultimately amount to spatial exclusion for those living within or alongside corridor areas, without bringing ecological or societal benefits. On-the-ground demarcation of corridor space appears to be of notably low importance in this factor (S4, -5), and it strongly rejects the idea of micro-scale, village level planning for conservation corridors (S28, -4). This suggests that this factor would rather envisage a fairly wholesale departure from conservation as it has been done in Tanzania so far – whether a fortress or community-based approach.

Unlike either F1 or F3, F2 is equivocal about the importance of local support in the success of conservation corridors (S29, 0). Contextualising this within the rest of F2's factor array, it is unlikely that this reveals a lack of concern for people: F2 fears that corridors will place a heavy burden on ordinary Tanzanian people, strongly rejects the notion of the government taking land from people for corridors, and does not believe that people have been prioritised over wildlife corridors in Tanzania (S17, +5; S23, +3; S7, -4). Rather, F2's equivocation about the importance of local support for corridors aligns with F2's general scepticism about the conservation project in Tanzania, and could be interpreted as a recognition that, depending on what your objectives are, it is entirely possible for conservation projects to achieve success *without* the support of local people (Brockington, 2003).

F2 displays the strongest possible conviction that corridors for conservation will have negative impacts on ordinary Tanzanians (S17, +5). Considered alongside F2's middling assessment of the corridor's role in Tanzania's future conservation success (S16, +1) and lukewarm response to Tanzanian connectivity as an issue of global importance (S20, 0), this would suggest that this factor perceives the conservation corridor as more likely to lead to undesirable outcomes for Tanzanian people than to achieve desirable outcomes for Tanzanian conservation. This factor destabilises the foundations upon which the conservation corridor has been constructed as the answer to the 'question' of ecological fragmentation in the first place. F2's supporting qualitative material conveys a sense of outrage and fear on behalf of Tanzanians for whom conservation may continue to mean exclusion, alienation and opportunity cost.

5.3.1.3 Factor 3: Instrumental Corridors

“Every unit of land should produce something for the benefits of the people”, respondent Q17

The sorts of six participants loaded significantly onto Factor 3 (F3), or *Instrumental Corridors*: four conservation practitioners with backgrounds in ecology or wildlife management (Tanzanian, non-Tanzanian African and non-African); a Tanzanian working in a management role related to the administration of WMAs; and a Tanzanian academic and consultant specialising in rural livelihoods.

F3 places more importance on village-level planning as a key element in achieving the overall goal of ecological connectivity than does any other factor (S28, +1), and is less supportive of the government claiming land from people for conservation corridors than is F1 (23, 0). This would suggest that F3 would generally lean more towards a community-based approach, involving small-scale land use planning, and avoiding inconvenience or negative impacts on people where possible. F3 also concedes that a lack of planning on and supervision over the movements and livelihood activities of people in Tanzania has been, or could be, a threat to ecological connectivity (S22, +3). F3 acknowledges that corridors could have negative impacts on people (S17, +1), and at the same time emphasises the corridor's capacity to reduce

human-wildlife conflict (S15, +4). Overall, then, the F3 perspective on corridors is people-centric, but recognising that wildlife and people impact on each other both positively and negatively.

F3 also firmly rejects blanket exclusion of human activity from corridors (S21, -4). Supported by QI17's assertion that "every unit of land should produce something for the benefits of the people", we can interpret F3's strong conviction that successful corridors require the support of local people (S29, +5) not as questionable, as we might for F1, but rather stemming from ethical imperative; the achievement of conservation *and* development objectives is foundational, practically and morally, to F3's corridor conceptualisation.

This can help us interpret F3's seemingly paradoxical lack of emphasis on boundary demarcation (S4, -1), combined with its comparative receptivity to using hard fencing (S39, 0). Unlike F1, F3 concedes that some elements of overt human intervention in ostensibly 'natural' processes may be necessary in the face of new conservation challenges: "It's something which may sound absurd at the moment. But it's something really needs to be considered in the future due to the rise of population" (QI08). Where F1 is fairly rigid in its idealism, F3 is *flexible* in its approach to corridors, taking account of the wellbeing of people as well as wildlife. As such we can interpret F3 as both willing to figuratively 'soften the divide' between people and nature (Hazen and Harris, 2007), *and* to make literal divisions where necessary. The "implicit geographical imaginary" (Evans, 2007) of the corridor is apparently not completely uniform among corridor proponents in Tanzania, but differs depending on approach to dividing people and nature.

The ranking of S5 ('Wildlife corridors are naturally occurring phenomena which cannot be artificially created') at 0 by both F1 and F3 suggests, perhaps somewhat surprisingly, that whether corridors are valued intrinsically or instrumentally does not strongly align with whether corridors are perceived as 'natural' or otherwise. In their interviews, individual respondents aligning with F1 and F3 voiced strong but complex, even ambivalent, opinions about whether corridors are naturally-occurring or not: F3 respondent QI18 stated "[The corridor] [...] is a naturally occurring thing, and of course, well, everything was natural before formalisation and legalisation, isn't it?", while F1 respondent QI01 asked "Are we forgetting

that wild animals can invade into places that belong to people also?”. Respondents demonstrate a complexity of feeling towards the idea of the corridor as ‘natural’ which is somehow not captured within a statement as bald as S5, nor reflected within scientific or lay conservation discourse on corridors.

To summarise, F3 acknowledges and accepts Tanzania’s somewhat mixed experiences with conservation, but maintains an overall belief in corridors as a conservation ‘good’. While this factor does have some overlap with F1, where F1 is more idealistic, F3 takes a more pragmatic view that is willing to engage with the messy realities of ‘doing’ conservation: positioning corridors as a tool for securing tangible outcomes; recognising that corridors may impact on people negatively; and suggesting that some new and perhaps jarring measures may need to be considered in order to address emerging conservation challenges or ensure corridors benefit both people and wildlife. The idealism-pragmatism divide separating factors 1 and 3 therefore corresponds to whether corridors are valued intrinsically or instrumentally, but not to whether corridors are likely to be perceived as natural or otherwise.

5.3.1.4 Points of consensus

No factors place particular emphasis on the importance of individual or household benefits from wildlife corridors (S40), perhaps reflective of the potential difficulty of generating such direct benefits from conservation in general (Bluwstein et al., 2018; Keane et al., 2020). More importance is placed on improving livelihood techniques and technology for those living alongside corridors (S11). No factor prioritises controlling population growth within their factor array (S38). This is perhaps somewhat surprising for F1’s *Righteous Corridors* perspective. Interpreted with respect to F1’s whole factor array, it is plausible that F1 envisages a future in which technological improvements to livelihoods, education on the importance of corridors and the clear demarcation of corridor boundaries mitigates against the ‘threat’ of an increasing population. This is borne out by Q104’s claim that “Population growth is not that much important (sic). The important part is land use planning”.

There is also agreement between factors 2 and 3 that the private sector will have a role to play in the future of corridors in Tanzania (S13). S13 can be considered a statement of ‘excess meaning’, meaning the statement is an accurate reflection of what is said in the Q concourse,

even if it could be interpreted differently by different respondents (Webler et al., 2009; West et al., 2016). Such statements can then be interpreted in the context of the factor's other statements and using supporting interview data. In this study, however, no clear interpretation of this statement emerged from analysis of the factors or interview data, and as such in this study there is no indication of whether the role of the private sector in the future of corridors in Tanzania is anticipated to be negative or positive.

No factor perceives that pursuing conservation corridors will detract from other conservation strategies (S9), although F2 is more amenable to this idea than F1 and F3, which is consistent with F2's more critical perspective on corridors and their position within Tanzania's wider conservation complex.

5.4 Discussion

In this chapter I have explicated professional conservation stakeholders' perspectives on the meaning, materiality and management of the corridor for conservation, in order to enrich our understanding of the corridor's "implicit geographical imaginary" (Evans, 2007, p130). Using Q, I extracted three corridor perspectives – *Righteous Corridors*, *Imposed Corridors*, and *Instrumental Corridors*. The three perspectives present corridors respectively as a remnant of a formerly wild Tanzania, an unimaginative and ultimately unhelpful manifestation of 'business as usual' conservation, and an imperfect but important tool for achieving people-friendly ecological connectivity.

Within this study most conservationist respondents were broadly pro-corridor, aligning with F1's *Righteous Corridors* or F3's *Instrumental Corridors*. Among these pro-corridor respondents, differences hinge on approach, while their belief in the rectitude of corridors remains firm. Those aligning with F2's *Imposed Corridors*, meanwhile, wish to reject the category of the corridor almost entirely. If F1 values corridors intrinsically, and F3 values them instrumentally, F2 values them not at all. These results suggest that any apparent consensus around the value of corridors is false, on two levels: first, the existence of the highly divergent F2 belies the impression of near-universal corridor endorsement given by the international/mainstream conservation discourse; and second, the points of divergence between F1 and F3 indicate an imperfect consensus even within corridor proponents. There

are both practical and theoretical implications arising from the dynamic between these three perspectives.

The theoretical implications relate to the role of the boundary object in the formation of conservation discourses. As discussed in 1.4.1, Goldman (2009) suggests that the concept of the boundary object has explanatory power in her case study, in which the ‘weakly structured’ *idea* of the corridor facilitated cooperation between ostensibly different groups, but that this broke down when the ‘strongly structured’ corridor was attempted *in practice* (see Star and Griesemer, 1989). Our results show that neither factor 1 nor 3 perceives corridors to be difficult to define, and yet their respective ideas of what a corridor can and should achieve, and how, are manifestly different – this supports Goldman’s conceptualisation of the corridor as a boundary object, but additionally suggests that as well as helping overcome *lack* of consensus between ostensibly opposing groups, the corridor boundary object is also at the centre of an imperfect consensus *within* groups of corridor proponents, as captured by factors 1 and 3. We suggest that, for professional conservation stakeholders in Tanzania, the appearance of the corridor boundary object differs depending on one’s perspective, but that the composite made up of those perspectives remains distinguishable and recognisable to all.

In this way, the corridor boundary object acts as an anchor around which differing versions of the corridor story can be narrated. This can be explained using Hajer’s (1995) concept of the discourse coalition, as discussed in section 2.2.1 of this thesis. As suggested in that section, for corridors, the unifying storyline is simply that ecological connectivity is a meaningful and useful concept, that it is good, and that corridors are a way of achieving it. The function of unifying storylines in discourse coalitions is to act as a rallying point, allowing members to invoke other narrative elements – in this case, this could be e.g. appeals to history or pre-history, the ethics of the precautionary principle, corridors as supporting existing protected areas – without having necessarily to name them. The points of divergence in F1 and F3’s stories centre on how to ‘do’ corridors, while the narrators continue to “draw on the ideas, concepts, and categories” of the established corridor discourse (Hajer, 1995, p. 60).

As such, the differences between factors 1 and 3 do not, to use Goldman’s (2009) language, destabilise the ‘fact’ of the corridor. Indeed, similar to Corson et al’s (2014) observations of

high-level discussions of protected areas, we suggest that this dynamic between F1 and F3 could in fact contribute to the sense of legitimacy surrounding the corridor, by ensuring that the debate on corridors is dominated by questions of management, rather than the fundamentals of the idea itself. These debates therefore act as a kind of discursive glue, holding together the corridor discourse coalition, and contributing to the burgeoning hegemony of the corridor. The highly divergent F2 perspective, though cognizant of the dominant discourse coalition, is excluded from it, and thus cannot destabilise the boundary object or undermine the corridor's growing hegemony. Goldman's (2009) concern that the corridor boundary object would stymie the development of alternatives appears well-founded – not only because it temporarily unites opposing groups, but also because it is key to the function of a deceptively fragmented corridor-supporting discourse coalition.

This has practical implications when aligning with policy-making and regulatory processes. Informal conversations taking place as part of the wider PhD research project indicated that some of the professional conservation stakeholders consulted during the development of Tanzania's corridor regulations privately expressed concerns about corridors as a conservation strategy in general, but were unwilling to do so publicly for fear of losing credibility. This explains the emergence of a corridor definition in the March 2018 regulations³¹ which reflects its status as a boundary object: both narrow enough to be workable within the context of the regulations, but broad enough to be open to interpretation by different parties. This corridor definition is now formally codified within Tanzania's conservation legislation. This indicates both discourse structuration and institutionalisation, and therefore fulfilling Hajer's conditions for a discourse to be considered hegemonic (1995). While those few aligning with F2's *Imposed Corridors* will find little to enthuse within the pages of the regulations, their position outside the corridor discourse coalition means their opposition is less likely to be taken seriously.

³¹ As a reminder, the definition of corridors in the regulations is as follows: "an area of land used by wild animal species in their seasonal movement from one part of the ecosystem to another in search of basic requirements such as water, food, space and habitat" – see section 3.3.3.3.

Part II: The regional corridor

In August 2017, an article appeared in *The Guardian* entitled ‘Tanzania’s ghost safari: how western aid contributed to the decline of a wildlife haven’ (Zee and Tremblay, 2017). In the article, the authors explain how the Kilombero Valley had been a thriving habitat for elephants, lions, hippos and buffalo – a “pocket Eden” – until as recently as the 1990s when, as the article explains, large swathes of the valley’s seasonal floodplain and its immediate surroundings began to be turned over to industrial rice, sugar and teak plantations, as well as extensive subsistence farming. It presents an impression of a place which has suffered from a lack of planning: allowing unchecked immigration (from within Tanzania), ambitious private enterprise (from foreign investors) and misguided aid money (from foreign donors) to transform the landscape over two decades. Wildlife corridors are mentioned several times in the article, described as being “under severe pressure”, and natural forest corridors running through industrial teak plantations deemed “too narrow”. A report on the Valley’s wildlife corridors, produced in 2007 by a conservationist named Trevor Jones, is cited. In the article, one corridor, the Ruipa Corridor, is named specifically, described as being under threat from the “rehabilitation of a road that runs straight through [its] heart”.

Part II of this thesis explicates the history, discursive construction, and material composition of the space that came to be known, in certain circles, as the Ruipa Corridor. Building on the literature reviewed on discourses on nature, and the production of conservation space, these chapters attempt to trace connections between discourse on conservation corridors, ideas about how people and nature should be configured in space, and how key actors orient themselves in relation to the conservation corridor idea as it circulates through their communities. Chapter 6 presents data on the initial discursive constructions of the Ruipa Corridor, how the Corridor is recognised by professional actors, and desired and anticipated futures for the Corridor space. Chapter 7 explores the role of two distinct forest areas in the production and evolution of the Ruipa Corridor space. Together, the two chapters chart the Corridor’s emergence as a conservation truth, and its established status as a conservation challenge or, for some, a conservation loss, against the context of an administratively fragmented, biophysically diverse and rapidly-changing Kilombero Valley. Part II also constitutes a bridge between the professionally-held perspectives on abstract corridors

presented in Part I, and the exploration of the real-life, on-the-ground impacts of an (attempted) local connectivity project to be presented in Part III.

For general contextual information on the geographical, biophysical, demographic and socioeconomic characteristics of the Kilombero Valley, where the Ruipa Corridor is ostensibly situated, please see section 3.4. Chapters 6 and 7 also contain more detailed information on the Kilombero Valley's position between the Udzungwa and Selous ecosystems, reported changes to wildlife presence over the past 10-20 years, and demographic change.

Note that in chapters 6 & 7, the capitalised Corridor is used to refer to the Ruipa Corridor, as opposed to the lower-case corridor used so far in this thesis to refer to corridors more generally, or in the abstract. Additionally, I sometimes refer to the Ruipa Corridor without using the qualifiers of e.g. 'claimed' or 'alleged' – but note that by doing so I do not uncritically accept the Ruipa Corridor as an unproblematic category, as will become clear as the chapters progress.

6 Constructing the Ruipa Corridor as a conservation truth

6.1 Introduction

This chapter charts the Ruipa Corridor's establishment, through key texts and on-the-ground activities, as a conservation truth and, for many, a conservation loss. Section 6.2 provides context-setting information on the Kilombero Valley, where the Ruipa Corridor is located (Figure 6.1). Section 6.3 provides a brief genealogy of the Ruipa Corridor and explores its initial discursive constructions. Section 6.4 outlines the present status of the Corridor as understood by various conservation stakeholders in the Kilombero Valley, past and present. In section 6.5 I explore how people feel about the future of the Ruipa Corridor, given their present understanding. I conclude in section 6.6 with a discussion of how the discursive construction of the Ruipa Corridor reflects primarily a 'territorialisation of mind' (Bluwstein and Lund, 2016) which has left a ghost-like presence of the Corridor hanging over the Kilombero Valley landscape.

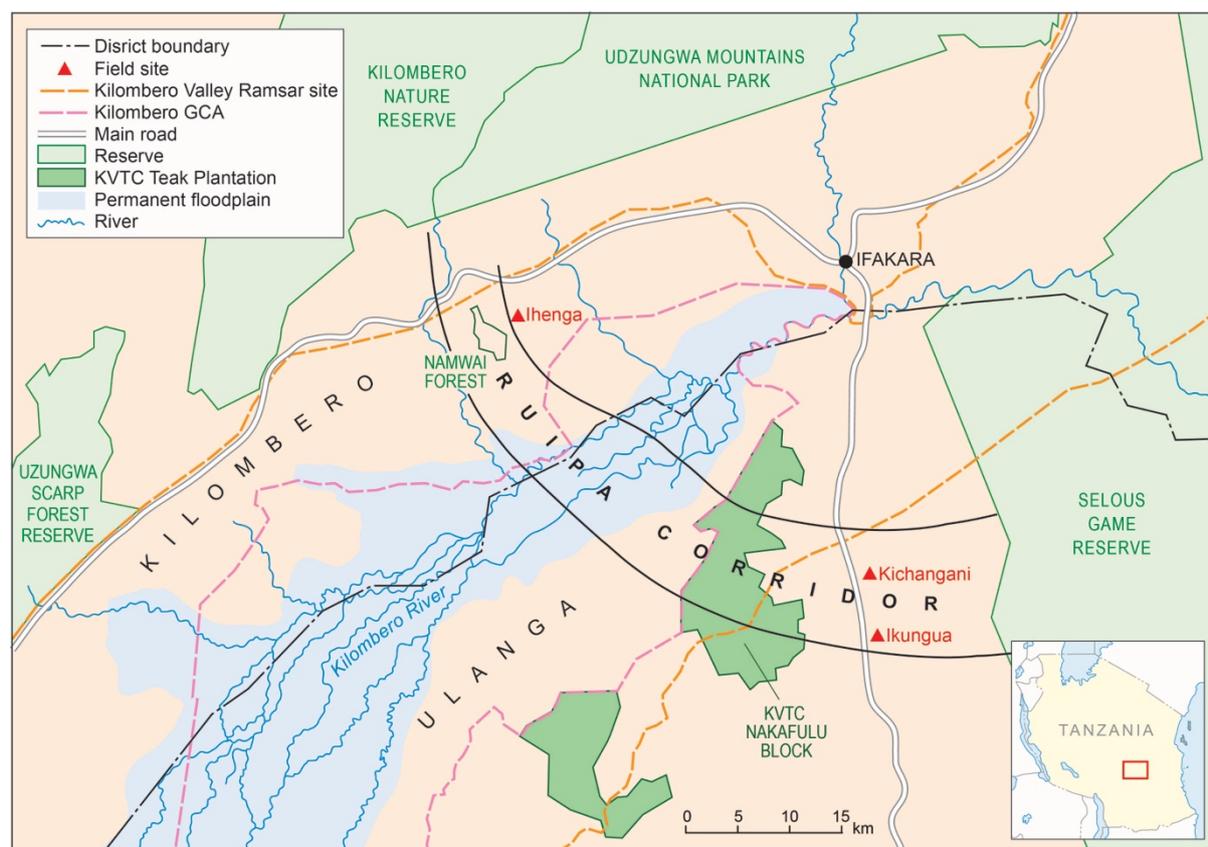


Figure 6.1 - Map showing the Kilombero Valley area's position between UMNP and SGR, showing approximate location of the Ruipa Corridor. Map by Phil Stickler.

In this chapter I draw on household survey data, documentary data relevant to the Ruipa Corridor, data from semi-structured interviews with conservation professionals, and data generated in the regional conservation and planning stakeholder workshop.

6.2 Demographics and land use change in the Kilombero Valley

Conflict in the Kilombero Valley Area often centres around land – boundary disputes between villages, confusion over village land use plans, (perceived) scarcity of land to support subsistence agriculture, ‘encroachment’ of people into protected areas, especially the Kilombero Game Controlled Area (GCA), and tension between farmers and herders. The Tanzanian state’s local planning mechanism of the Village Land Use Plan is positioned – particularly by planning professionals working in the government – as the primary tool for redressing these local-level land disputes: mainly by determining and gazetting (legally establishing) village boundaries; and by making clear demarcations between areas of different land use within village boundaries (e.g. settlement, grazing, burial, forest etc.), as per the Village Land Act of 2007 (as discussed in section 3.3.2). However, border creation or formalisation does not necessarily quell conflict: borders are socially-constructed expressions of (political and institutional) power, creating us/them, included/excluded binaries that can animate underlying conflicts or create new ones (Fall, 2010; Newman, 2006). Empirical research from sub-Saharan Africa demonstrates how conservation-related bordering processes can become particularly fraught, by e.g. adding new layers of confusion in already-contested landscapes (Bluwstein and Lund, 2016) or imposing landscape configurations that conflict with local or traditional governance of natural resources (Noe, 2014; Ramutsindela, 2014). In short, while formal bordering processes might signify safeguarding, protection, or restoration of order for some, it can mean exclusion, alienation, and even ontological violence for others. Additionally, while the mandated village land use planning process as set out in Tanzania’s 2007 Village Land Act is ostensibly participatory, in practice, it is possible for the process to be co-opted by powerful organisations or individuals who have a stake in how village land is used (Walwa, 2017). As such, although many villages in the districts surrounding the Kilombero Valley have village land use plans, land use conflicts and boundary disputes continue in villages around the Valley³².

³² This is discussed in more detail in chapters 8 and 9, in which I discuss how village-level land use planning influences corridor projects and vice-versa.

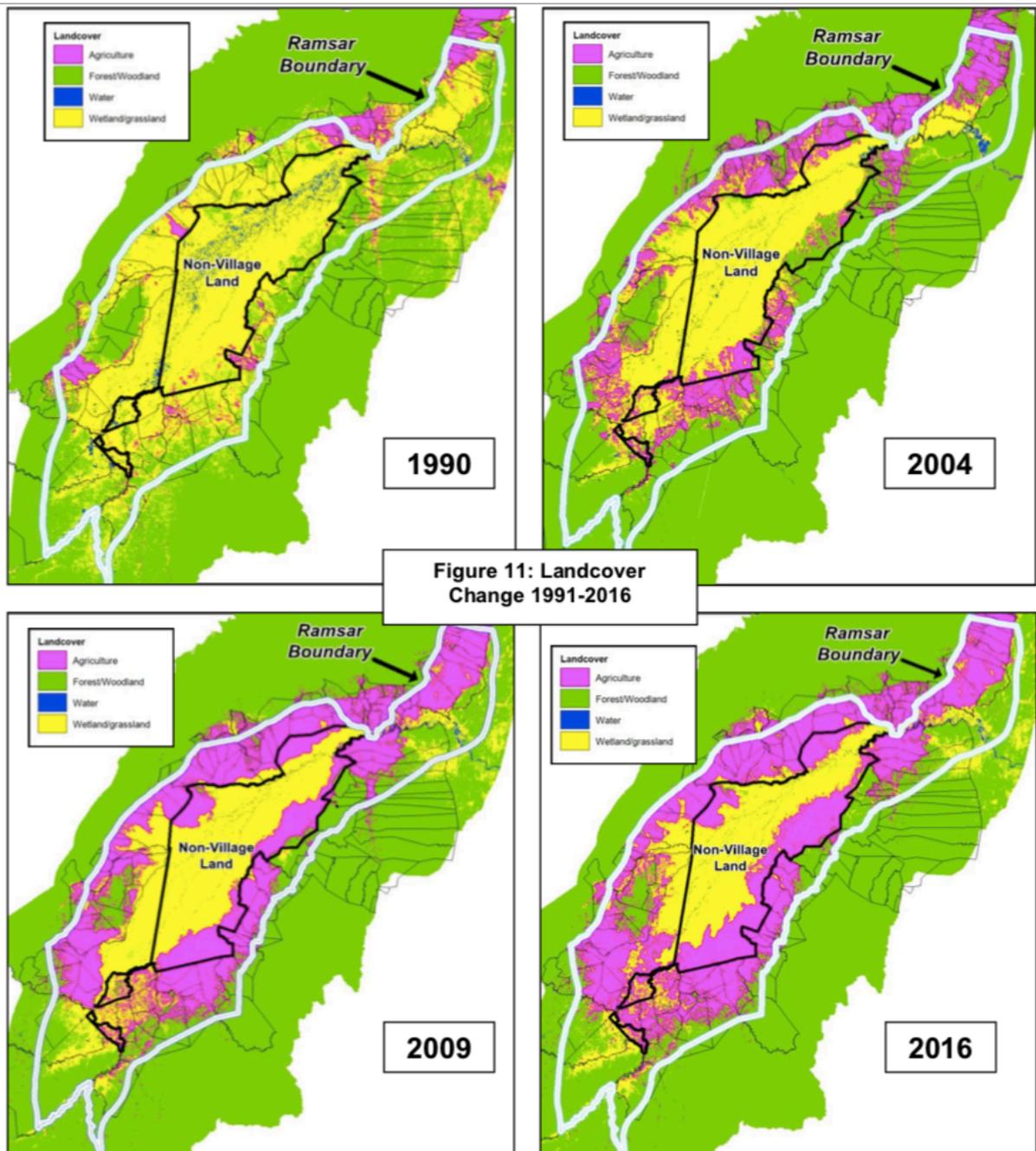


Figure 6.2 - Landcover change in the Kilombero Valley, 1991-2015, from the KILORWEMP 2017 Land Diagnostic Report. The bold black line shows the boundaries of the Kilombero Game Controlled Area. From AMBERO Consulting (2017)

As well as inter- and intra-village land conflict, there is also tension surrounding the borders of protected areas in the Valley. Figure 6.2 shows the change in land cover in the Valley since 1990. The growing area of pink shows how land has been increasingly turned over to agriculture over the past 30 years; the pink within the thick black border indicates that this change in landcover has also occurred within the boundaries of the Kilombero GCA. According to IN22, a Tanzania Wildlife Authority wildlife officer working in the GCA, the borders have

been recently redrawn to include only areas that are still considered “viable”. In other words, the boundaries of the Kilombero GCA have been changed to reflect changes that have already taken place. Given the (relatively) recent changes to GCA regulations introduced with the 2009 Wildlife Act discussed in section 3.4.1, which now place restrictions on land use within GCAs, we can think of these changes to the Kilombero GCA as both a redrawing and a fortification of boundaries, intended to more clearly single the GCA out as a conservation space. Since then, however, enforcement of those regulations has proven difficult, largely due to lack of resources (according to Kilombero GCA staff IN21 and IN22).

Land cover change in the Kilombero Valley is perceived to have had an impact on ecological connectivity between the Udzungwa and Selous ecosystems. Recognition of the remarkable and rapid change indicated in the above figure is present throughout survey, interview and workshop data. The changes most often cited were reduction in presence of large mammals (especially elephants, buffalo and lions) in and around villages, loss of forest, and changes in weather (specifically less frequent and predictable rain). In household surveys, of those respondents who reported having ever seen elephants in or around their village (149 out of 311), just 10 reported seeing them within the past year.

The Kilombero Valley area is ethnically diverse – household survey data revealed 21 different tribes across the 200 households surveyed across two villages in Ulanga district only. The tribes that are considered ‘native’³³ to the wider Valley area are the Pogoro and Ndamba, though in my household survey, Pogoro were by far the most numerous: 614 of 820 total household members across the two villages were Pogoro. After Pogoro, the most prevalent tribal affiliation is Sukuma, totalling 103 household members. However, many research participants in Ulanga District, from interviews and workshops at village and professional levels, claimed that many or most Sukuma people lived outside of designated village settlement areas, often broadly referred to as ‘porini’, or ‘in the bush’.

³³ ‘Native’ is a word used frequently by Tanzanian respondents, whether in English or Swahili, ascribed to people within a tribe which has historic connections to a particular geographical area. It is the most common translation into English of the Swahili word ‘mwenyeji’.

Sukuma people are agropastoralists, unlike those who are ‘native’ to the Valley who traditionally farm and fish. Within the context of the Kilombero Valley area, then, Sukuma are therefore referred to as immigrants from their own ‘native’ lands: the arid regions of the lake zone in northern Tanzania, particularly Mwanza, Shinyanga and Simiyu. Both primary and secondary data suggests that Sukuma immigration to this area is relatively recent, beginning apace in the late 90s and early 00s and continuing steadily since. According to interview data (with villagers, village and district council members, and conservation and planning professionals working in the area), the Kilombero Valley area is appealing to immigrants because the moist and fertile soil makes farming easier and less dependent on agricultural inputs. The abundance of water and vegetation is also a draw for those who herd cattle, as it makes their cattle healthier and thus more likely to breed. An important ‘push’ factor for this immigration of Sukuma people was their displacement from the Usangu plains as part of the expansion and/or formalisation of the Ruaha National Park (Walsh, 2012) – again, this interpretation is borne out by interview and workshop data. This immigration increased (or perhaps simply made more visible) cultivation- and settlement-based land use within the legally and politically ambiguous Kilombero Game Controlled Area. Despite the ambiguity, the narrative that developed around this land use change in the GCA became one of ‘encroachment’ and ‘incompatibility’, while in official documentation³⁴ there was a silence around the evictions from Usangu as a reason for the upswing in immigration to Kilombero (Bluwstein et al., 2018). Sukuma immigration is a thorny topic in the Kilombero Valley, as will become clear as the chapter progresses.

6.3 A brief history of the Ruipa Corridor idea

The Ruipa Corridor was first named as such in the 2007 report entitled ‘Vanishing Corridors: A Last Chance to Preserve Ecological Connectivity between the Udzungwa and Selous Ecosystems of Southern Tanzania; A Feasibility Study’, by Jones et al (2007). Named for the Ruipa River, the Corridor is described as being between 0.5 and 6km wide at various points, and 20km long, with a total area of around 25km² (ibid). In the report, the Ruipa Corridor is identified as one of two remaining corridors connecting Udzungwa Mountains National Park (UMNP) and the Selous Game Reserve (SGR) – the other they named the Nyanganje Corridor.

³⁴ The [SACGOT Strategic Regional Environmental and Social Assessment](#) from consulting firm Environmental Resources Management

The two corridors are described as providing “ancient and immeasurably valuable ecological connectivity” (p4), which they define in terms of “gene flow between populations of large mammals, made possible by movements of individuals between two Protected Areas” (ibid, p3). The authors predict that “unless urgent interventions are made to protect these two remaining corridors, both corridors will be irreversibly blocked by the end of 2009” (p4). In this report, however, more emphasis is placed on Ruipa as a connection between UMNP and the floor of the Kilombero Valley, rather than as a connection all the way to the SGR. This is reflected in Figure 6.3 below, which shows the map of the Ruipa Corridor provided in Jones et al’s 2007 report.

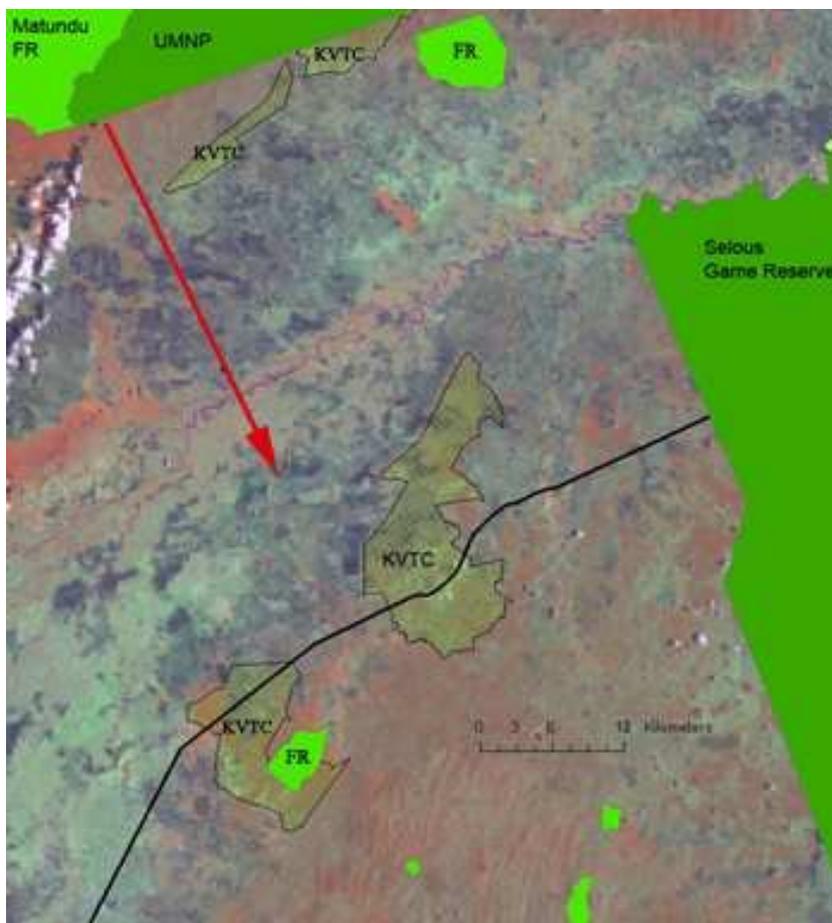


Figure 6.3 – Representation of the Ruipa Corridor, from Jones et al 2007.

The image shows a straight red arrow indicating the “active corridor for movements of elephants and other large mammals”. However, as we can see, the arrow stops short of reaching the Selous Game Reserve.

Areas marked KVTC are Kilombero Valley Teak Company plantations. FR is forest reserve, and UMNP is Udzungwa Mountains National Park

Another report followed in January 2009, authored by Jones in conjunction with the Tanzania Wildlife Research Institute (TAWIRI) – this time a general report about corridors in Tanzania, in which 30+ individual corridors were identified³⁵. Like in the 2007 report, both the Ruipa

³⁵ 31 areas of connectivity were identified in the report, within which there may be more than one individual corridor.

and Nyanganje Corridors are discussed in the context of connecting UMNP and SGR. Once again, the authors predicted that without intervention, both corridors would be blocked by the end of 2009 – the year the report was written. And, once again, more emphasis is placed on the Nyanganje Corridor as a connection from UMNP all the way to SGR, while the Ruipa Corridor is depicted as primarily connecting the UMNP (via the contiguous Kilombero Nature Reserve) to the floor of the Kilombero Valley. The representation of the Ruipa Corridor in the 2009 report is shown in Figure 6.4.

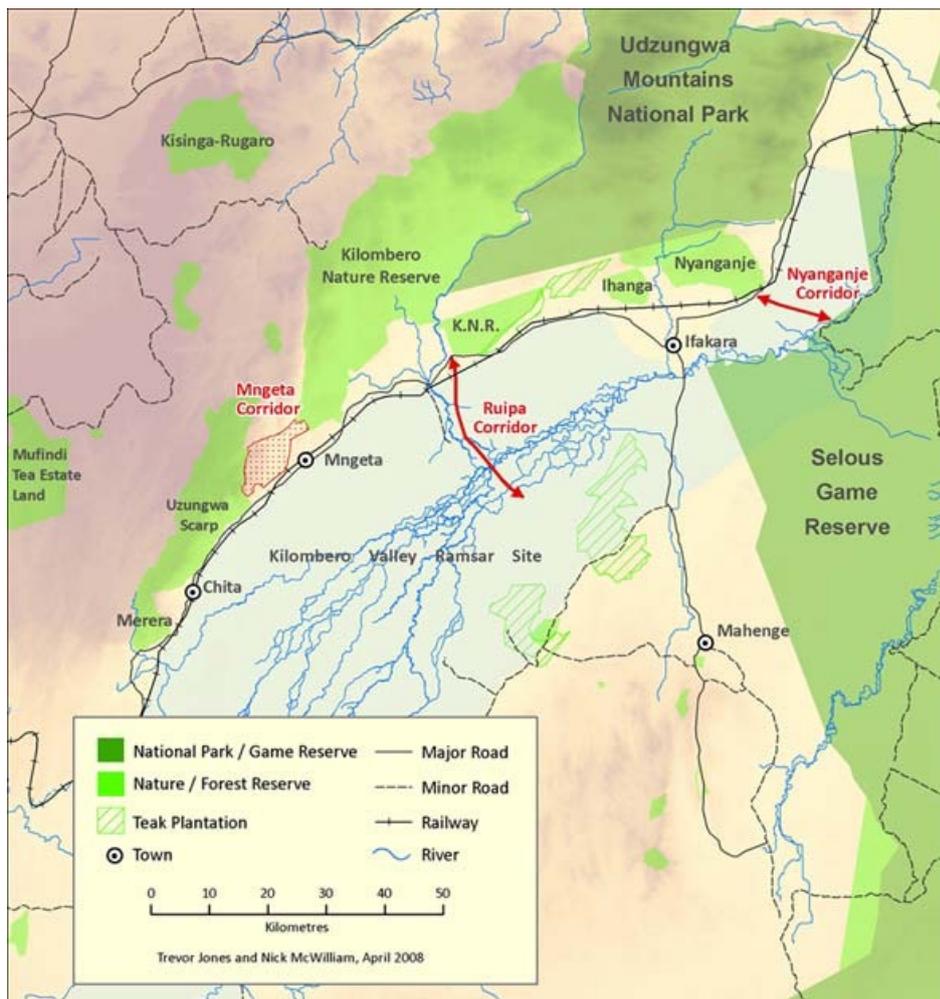


Figure 6.4 – Representation of the Ruipa Corridor, from Jones et al 2009. In this representation, once again the red arrow showing the Ruipa Corridor appears to reach only as far as the Kilombero Valley floor, and not to the boundaries of the SGR

In July 2009, the Society for Environmental Exploration – the non-profit arm of a voluntourism organisation named Frontier (see Table 3.3) – was awarded funding from the Darwin Initiative for a three year project entitled “Conserving the Ruipa Corridor: facilitating cohesive management between diverse stakeholders” (The Society for Environmental Exploration,

2009). Having had a presence in the Kilombero Valley area since the 1990s, data collected by Frontier volunteers contributed to the Jones et al 'Vanishing Corridors' report from 2007, discussed above, in which the Ruipa Corridor was first named. In turn, Frontier's application to the Darwin Initiative cited the *Jones* report, echoing Jones et al's sense of urgency: "Unless decisive action is taken to establish collaboration amongst stakeholders, anthropogenic impacts will result in a complete loss of connectivity between the ecosystems within only a few years" (The Society for Environmental Exploration, 2008, p. 5).

Despite the efforts being made by Jones, the institutional support from TAWIRI, and the activities of the Frontier corridor project which ran from 2009-2011³⁶, in 2012 Jones et al published an article in *Tropical Conservation Science* entitled 'Vanishing wildlife corridors and options for restoration: a case study from Tanzania', describing how large mammal transect and household survey data, collected again with the support of Frontier volunteers, suggested a significant decline in the presence of wild mammal species, and an increase in cattle presence, in the claimed Ruipa Corridor area from 2007-2010³⁷. From this data, the paper describes the Ruipa Corridor – and its counterpart the Nyanganje – as "blocked". Interestingly, however, it also highlights both the tendency for elephants to "remember old migration routes many years after being denied access to them", and the capacity for ungulates to resume migratory patterns if connectivity is restored within a few years of being lost. The paper concludes, therefore, that "the blocking of these corridors should not be considered irreversible". This sliver of optimism is in contrast to the claim made by Jones et al in 2007 and 2009 that blockage of the corridor would be irreversible. Note, also, that the 2012 iteration of the Ruipa Corridor schematic has changed from earlier depictions, clearly demonstrating the Corridor reaching the border of the SGR (as opposed to simply into the heart of the Valley), and possibly branching into two and/or widening. Comparing figures 6.3, 6.4, 6.5 and 6.6, we see that the cartographic representations of the Ruipa Corridor become more definite, with a connection to the Selous more complete, even if the prognosis for the corridor itself was not improving.

³⁶ Frontier's Ruipa Corridor project is discussed in more detail in chapters 8 and 9.

³⁷ According to the article, most species recorded in 2007 were not recorded at all in 2010 – including buffalo, bushbuck, baboon, duiker, waterbuck, hartebeest and bushpig. In contrast, sign of cattle was detected in all transects in 2010, compared to 37% of transects in 2007. In a questionnaire conducted in three villages bordering a forest at the northern edge of the Ruipa Corridor, 78% of respondents reported elephant presence in their farms in 2007, compared to 38% of respondents in 2010

The initial discursive constructions of the Ruipa Corridor from Jones et al first created a sense of urgency, followed by a sense of impending loss, and concluded on a negative note, tempered by cautious optimism. These, the first Ruipa Corridor signals to be broadcast, did not catalyse a wholesale restoration or protection of the area identified as the Ruipa Corridor; to this date there has been no attempt at this. However, in the intervening years since the 2007 Jones report was first produced, the idea of the Ruipa Corridor has circulated as a legitimate category of conservation concern among many with a professional stake in conservation and/or land use planning in Tanzania. Among interviewees, those who had at least heard of the Ruipa Corridor included district forest officers in Kilombero and Ulanga (IN14, IN26), the chairman of a village in Ulanga District (IN03), a ward councillor in Kilombero (IN13), and several people professionally involved (directly or indirectly) in conservation in Tanzania working outside of the Kilombero Valley area (IN12, IN51, IN57, IN64). Research conducted by Jones was cited several times by interviewees as a source of knowledge and awareness of the Ruipa Corridor (IN12, IN13, IN51, IN67, SC01).

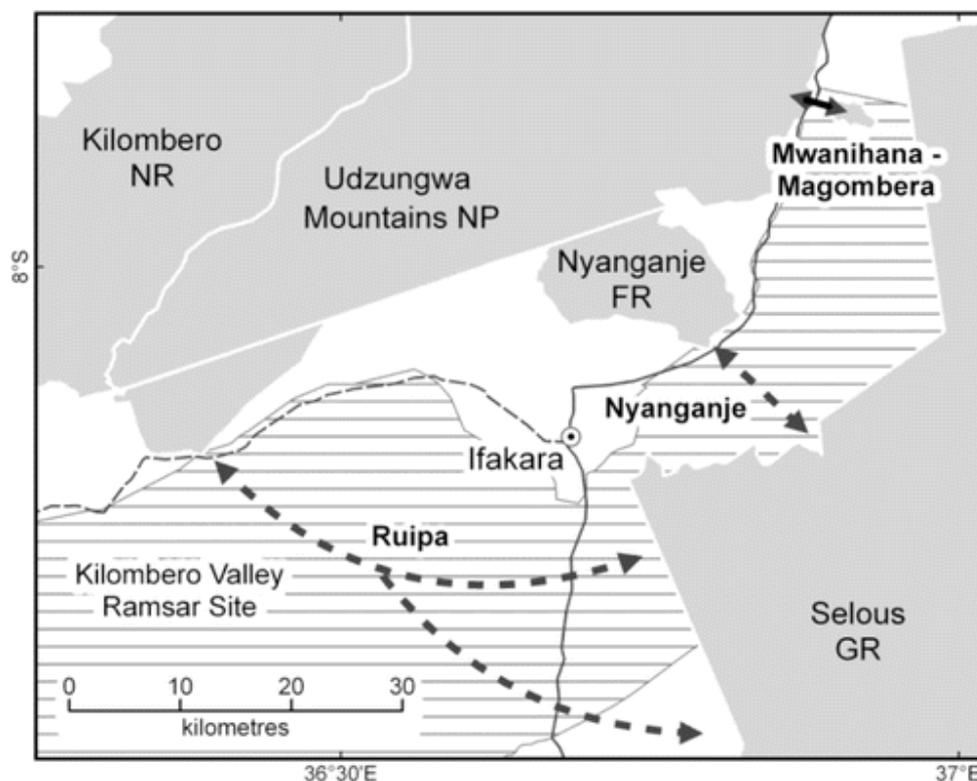


Figure 6.5 – Map showing approximate location of the Ruipa and Nyanganje Corridors, as well as a potential route for the Magombera Corridor. From Jones et al (2012)

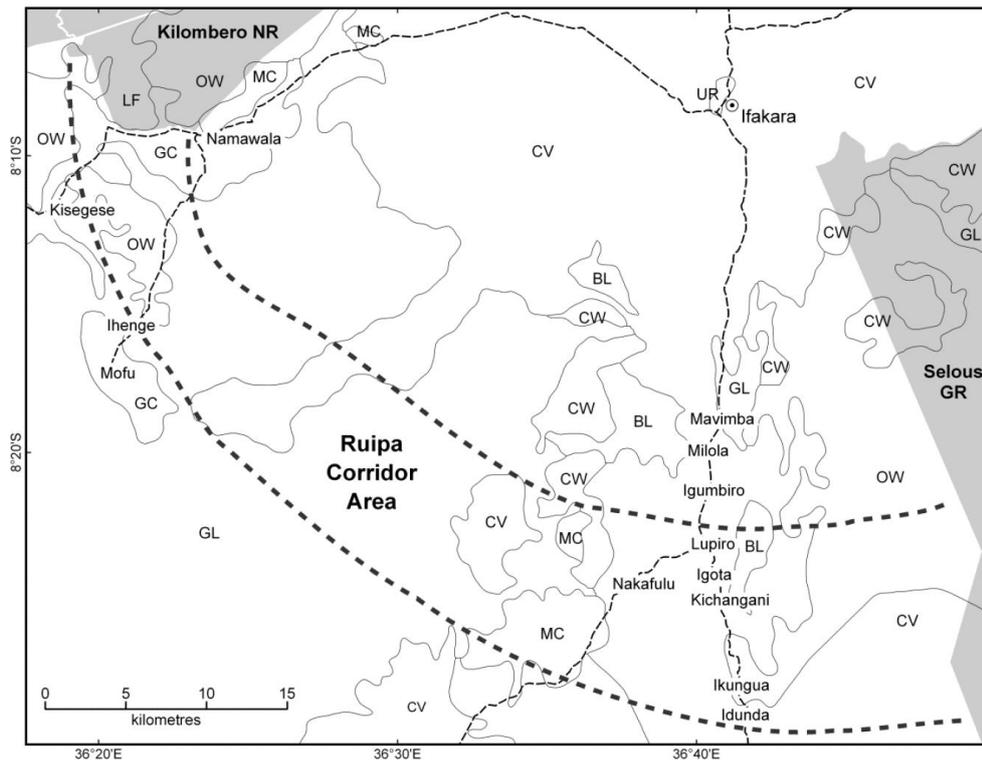


Figure 6.6 – Map showing land cover and villages of the approximate Ruipa Corridor area, showing land use types. BL = Bushland, CV = Cultivation, CW = Closed Woodland, GC = Grass with Scattered Crops, GL = Grassland, LF = Lowland Forest, MC = Monocrop (teak plantations), OW = Open Woodland. From Jones et al (2012).

Jones’ studies have been called upon at key points in the discursive construction of corridors for conservation in the Kilombero Valley, and in Tanzania more broadly, recurring like a motif to fortify knowledge claims and strengthen the case for urgent action. By creating a sense of legitimacy and providing an opportunity for an organisation to neatly align itself with the noble aim of achieving ecological connectivity between the Udzungwa and Selous ecosystems, the 2007 Jones et al report was instrumental in the development of Frontier’s corridor project, and by extension the real-life, on-the-ground impacts the Frontier project would eventually generate³⁸. Additionally, the 2009 report produced in collaboration with TAWIRI is cited extensively in a 2017 technical study produced by USAID for the Tanzanian government, as an input for the preparation of corridor regulations (Debonnet and Nindi, 2017). The corridor regulations were published in March of the following year. While the technical report made a fairly bleak assessment of the Ruipa Corridor itself, describing it as “**blocked**” (ibid, p18, emphasis in original), the point here is less about the status of the Corridor on the ground, and more about its status of the Corridor as a conservation fact. The

³⁸ Again, this is discussed in detail in chapters 8 and 9.

inclusion of the Ruipa Corridor in USAID's technical report both demonstrates and bolsters the legitimacy of the idea of the Ruipa Corridor, and of the 2009 report from TAWIRI and Jones that it draws from. Jones et al's research was also cited in conservation workshops held years after original publication, such as the Morogoro regional stakeholder meeting held by the Kilombero and Lower Rufiji Ecosystem Management Project (KILORWEMP – an important conservation planning project ongoing in the Kilombero Valley at the time of data collection – see Table 3.3 on p72) in May 2018 (OB04).

As discussed in 2.5, Thinking in networks, branches of scholarship that emphasise network thinking such as ANT or the 'enabling metaphor' of the assemblage, conceive of agency not as emanating exclusively from people acting with intent, but inhering within *any* entity which, as part of a network, has capacity to influence processes or things through its relationships with other actors. Jepson et al define conservation actors, therefore, as "entities with agency, i.e. the capacity to produce a phenomenon or modify a state of affairs" (2011, p. 230). After Jepson et al, we can think of the reports and articles generated by Jones and his colleagues as possessing a non-human agency: within the broadly-defined network of conservation stakeholders in the Kilombero Valley, the texts possess a *potentiality*, allowing for further action to be channelled, conversations to be guided, language to be used, and for discourse coalitions to grow and find support. In this way, after Bluwstein and Lund (2016), we can think of the discursive constructions initiated by Jones et al in 2007 as creating a kind of discursive conservation frontier, creating spaces in which the Ruipa Corridor could be further invoked. This represents a parallel to the 'territorialisation of mind' observed by Bluwstein and Lund in the Selous-Niassa Corridor: each time the Ruipa Corridor is invoked, it advances its production as a space, and reinforces the idea of ecological connectivity as an issue of importance in the Kilombero Valley. As in Bluwstein and Lund's work in the Selous-Niassa corridor, however, this 'territorialisation of mind' occurs primarily, if not exclusively, for those who are already engaged with professional conservation and planning practice and discourse in the Valley area.

6.4 Recognising and protecting the Ruipa Corridor

Having discussed the ways in which the Ruipa Corridor has been discursively established in the (relatively recent) past, this section discusses more contemporary perceptions of the

Corridor space. In this section I focus on how key conservation and planning actors in the Valley *recognise and apprehend* the Ruipa Corridor, how they perceive *threats* to the corridor, and collective desires for how to *manage* the Ruipa corridor in light of these threats.

6.4.1 “It was all a bloody corridor”: Recognising Ruipa

During the period of data collection in the first half of 2018, the KILORWEMP project was entering its final stage, collecting data to support the recommendations for a Kilombero Valley integrated management plan that would constitute the project’s main output. Having been established as an issue of concern in the Kilombero Valley, as detailed above, the status of the Ruipa Corridor featured in their overall environmental assessment of the Valley. IN01, a biodiversity consultant working for KILORWEMP, recognised the presence of the Ruipa Corridor via the presence of forest – and correspondingly, the absence of forest with the absence of the Corridor. For this respondent, visible forest coverage directly corresponded to connectivity, which he assessed using drone footage. This emphasis on the aerial perspective demonstrates how readily the Corridor can align with the cartographic ‘view from nowhere’ – as highlighted by Goldman (2009). IN60, liaison between KILORWEMP and Ulanga District Council, confirmed that KILORWEMP’s assessment of corridor presence in the Valley was based on “vegetation cover”. IN60 also commented on how some residents in Ulanga district who dislike the imposition placed on them by the Corridor³⁹ cut down trees to “destroy that image [of a corridor]”. IN01 and IN60 both demonstrate a focus on *visible* connectivity which corresponds with the emphasis on the *structural* connectivity discussed in section 1.4.1, nicely captured in Chetkiewicz et al’s definition as “patterns of remaining habitat that *appear* (to human observers) to be connected in a simplified and binary depiction of the landscape” (2006, p. 320, emphasis added). The simplicity and tractability of static, linear stretches of ‘natural’ habitat may be appealing to people, but are perhaps less important for wild animals which, Chetkiewicz et al emphasise, “do not have the omniscience that a geographic information system (GIS) provides us for visualizing corridors” (2006, p. 323). By focusing on the aesthetics of forest cover, corridors can be made “crystal clear through the use of geospatial technologies” (Goldman, 2009, p. 197), and are therefore highly ‘mappable’ (Harris

³⁹ The ways in which the “presence” of the Ruipa Corridor impacts local communities is discussed in chapters 8 and 9.

and Hazen, 2005), perhaps pushing conservation practice towards the ‘territorial fix’, as discussed in sections 2.3.2, and 2.3.5.3, and 3.3.3.1.

When asked about large mammal presence and movement specifically, IN60 briefly recounted his own conversations with the district wildlife officer: “I remember the question was, how did you discover that there was a corridor here? So the lady has answered that ‘I assessed through community complaints on human-wildlife conflict’. Human-wildlife conflict. And when the community of these villages which is the corridor complained that lions they have come to my area, and they have killed goats, and elephants they have crossed our farm in the same area, so the wildlife professional can find out this is a wildlife corridor.” For IN60, then, the Ruipa Corridor’s presence is made evident at the point of conflict between wild animals and human beings. IN25, the wildlife officer in question, recounted to me two separate instances of providing an armed escort to groups of elephants and lions in the years 2016 and 2017 respectively, through Ikungua village and its southerly neighbour Idunda, “to protect them as they were moving”. Both escorts were largely without incident, other than one lion attacking a police car on the Ifakara-Mahenge road, which resulted in the lion being shot⁴⁰. IN25 also reported an instance of a single lion attacking cattle in Kichangani village in 2018. For IN25, these instances of large mammal movement and human-wildlife conflict provide evidence for the viability of the Ruipa Corridor: “The route is viable. Animals are moving”. IN25’s assessment of the Corridor as ‘viable’ is founded on the movement of the animals *per se*, and is not tempered by the apparent need to provide them with an armed escort.

Both IN25 and IN60 made clear their belief that corridors are naturally-occurring phenomena, and one that therefore requires the clearing of sufficient space for wildlife to move: “When the animals are crossing, if the route is not having any obstacle, they [...] will just go smoothly” (IN25); “Having a corridor is something important [...] and ecologically, it’s naturally (sic). It’s not planned” (IN25); “In wildlife profession, they know that wildlife corridor is a natural thing. It just happen that the wildlife are passing there years and years, so that’s why they are the wildlife corridors” (IN60); “You cannot make a corridor. It is natural. You just take it as it is,

⁴⁰ The lion was found dead close to a teak plantation block some days later.

protect it, so that it is natural” (IN60). The implication is that protecting or restoring the Ruipa Corridor would simply require the provision of sufficient space. IN12, who worked for the Frontier voluntourism organisation in the Kilombero Valley in the 1990s and 2000s⁴¹, and who maintains a stake in wildlife conservation in the area, echoed these sentiments, claiming that “There’s farmland for maybe a good 5k each side of the [Ifakara-Mahenge] road now. That is a hell of a barrier to natural movement of wildlife, so there’s not a chance in hell”. Like IN25 and IN60, IN12 positions the Corridor as a natural entity existing in a sea of anthropogenic hostility.

However, IN12 also positions the Corridor itself as an *outcome* of anthropogenic pressure: “You cannot think of these corridors [...] like, these are the routes where [wild animals] have walked for millions of years – yeah they are, but there were loads like that. These are the routes that have survived. That now have names because, you know, some westerner has given them a damn name.”; and “You know, these corridors [...] you speak of these corridors, and like, those corridors, it was all a bloody corridor. [...] The ones that you speak of are the ones that were left.” IN63, a senior staff member for KILORWEMP, expresses a similar view: “What is exist? What do you mean? [...] In historical times wildlife was plenty there, and moving freely – but ultimately nobody really knows. But think about it, we’re talking about corridors because when wildlife space started restricting some areas were left behind and wildlife kept moving through those areas. Nobody really knows how wildlife was moving [...] We talk about Ruipa Corridor now, how about in the 1960s? Probably you could travel in town and say hey, where is the Ruipa Corridor, and people wouldn’t even know what you were talking about”.

IN12 and IN63 see the Ruipa Corridor as the combined outcome of social and natural forces: wildlife movement, shaped by anthropogenic change taking place in the Valley, becoming habitual until it was eventually recognised and named as a corridor by human observers. In so doing, they position the Ruipa Corridor – whether wittingly or unwittingly – as a socio-natural co-construction. This is an interesting comparison to the views of those who see the corridor as something spontaneous and naturally-occurring, a phenomenon simply made

⁴¹ This pre-dates Frontier’s Ruipa Corridor project

visible at the point of human interaction, but which ultimately exists independently of human observation. The difference between these perspectives is subtle but important, as it informs respondent perspectives on the extent to which the Ruipa Corridor could be considered manipulable, and by extension the extent to which *people* might be expected to ‘make way’ for corridors, or vice versa. This issue is touched upon again in chapters 8 and 9, which discusses the impacts of Frontier’s corridor project in two villages in Ulanga District located “within” the Ruipa Corridor.

6.4.2 “You cannot teach animals where to pass”: Managing Corridor threats

The presumed antipathy between people and wild animals was expressed by a wide range of respondents – representing private interests, local government authorities and non-governmental organisations – in terms of human population increase. Respondents repeatedly pointed to this as the most pressing threat to conservation in the Valley generally, and to ecological connectivity specifically. IN21, project manager for Kilombero GCA, said of maintaining the connection between the GCA and Udzungwa to the north and Selous to the south “It’s difficult now, very difficult, because I can see the GCA now is surrounded by people [...] There is no clear connection you can see that has no settlements”. IN45, social manager for Kilombero Valley Teak Company (KVTC), said of the Ruipa Corridor “It’s ecological value is questionable because there’s a lot of immigration of people, the population has increased [...] We are seeing now threatened on both sides [...] by human activity”; and “In Tanzania we don’t have control over [population growth]. Someone can have 18 children. How do you manage corridor with 18 children?”. IN12 summed up the situation in the Valley succinctly as follows: “The population has expanded so there’s been, you know – everything’s destroyed”. A respondent operating at a ‘higher’ level of spatial abstraction, the Natural Resource Officer for Morogoro Region, IN69, took a similar perspective: “Because of, I don't know if it's because of negligence or what, but the corridor is highly populated with people and some other human activities inside. Especially settlement is there. And the only way to be able to open Ruipa corridor to have to come, er, in consensus with the community.”

Consistently, this problematic increase in population in the Valley was attributed primarily not to natural increase but to immigration; usually, Sukuma people – the agropastoralist ‘immigrants’ discussed in section 6.2, were mentioned specifically. Respondents spoke of how

Sukuma people “clear everything” (IN21), “break the ground with their cows and get the local guys that they can economically overpower to farm it for them” (IN12), and as a result they “stopped the habitat, and now we have somehow nothing about wildlife corridors” (informal group meeting with wildlife officers at Ifakara Town Council).

As mentioned, Sukuma people are not considered ‘native’ to the Kilombero area and, because they practice both agriculture and cattle herding, they are perceived to be wealthier and more powerful compared to the ‘natives’ of the Valley area. This narrative was present across multiple groups: an attendee at the pilot village workshop in Igota, and IN11 (a conservation academic and consultant), both spoke of Sukuma people bribing village governments to gain access to land or avoid sanctions such as having cattle seized; IN40 (a Kichangani villager), IN13 (a ward councillor), IN17 (a district wildlife officer) and IN45 (an employee at a private teak plantation) all voiced suspicions or beliefs of tribal affiliations influencing the decisions of powerful regional government actors. Respondents tended to position Sukuma people as fundamentally different from those they considered to be ‘native’ to the Valley: a ward councillor in Kilombero District said that “The problem of Kilombero is not the problem which has been caused by the natives” (IN13), while a wildlife officer for Kilombero GCA, said “The native people of this area, they are not big farmers. They are not livestock keepers. They used to fish, and we can call it sustainable. And they were not interfering with wildlife resources” (IN22).

Among participants at the regional stakeholder workshop in Ifakara (see section 4.4.5), there was emphatic agreement that lack of enforcement of existing rules and regulations – especially surrounding village land use planning, and encroachment into the Kilombero GCA – had led to a serious impediment to the movement of large mammals through the Valley between the Udzungwa and Selous ecosystems. Population increase, especially through immigration, was identified as a) particularly problematic and b) very unlikely to abate. For the respondents, this was leading to a crisis of land allocation, land use and planning which was impacting negatively on the Ruipa Corridor. In the group’s collective vision of a desirable future for the Kilombero Valley, it was ultimately decided that this crisis would be best addressed by designating the Corridor formally as category of protected area, imposed from the top down and managed from the central government like a national park or a game

reserve. This view clearly resonates with the ‘fortress’ approach to wildlife conservation discussed in sections 2.3.2 and 3.3.3.2, with an emphasis placed (at least in the immediate term) on safeguarding space for wild animals, rather than addressing socio-economic and political factors that may be driving migration into and within the Valley.

However, conversations about selecting the area to be designated as a corridor complicated the issue. One participant provocatively questioned whether, in the face of constantly increasing population, a flexible approach to boundary demarcation might be appropriate. For example, he suggested identifying corridor area through “scientific research, showing that it’s a suitable route for animal movement, and you impose it on the nature” – i.e. determining a viable corridor area based on vegetative coverage or availability of resources, and attempting to constrain wild animal movement to that area. As an alternative, he suggested determining the corridor area “in a participatory way”, consulting with local on-the-ground stakeholders and reaching an agreement based on what was acceptable to them. Other workshop attendees were unequivocal in their discomfort with defining the corridor in either of these ways: “You cannot teach animals where to pass [...] It’s not the humans making the corridors. According to the animals themselves this is the path”; “[Animals] know for sure where is good to pass”; “It’s not how do we feel that is determining the corridor – it’s the experiences on the ground there”. Another participant pointed out that the location and extent of the Ruipa Corridor had already been identified by Trevor Jones and his colleagues, based on transect data.

Most respondents in the regional stakeholder workshop suggested that any deviation from the already-established pathway of the Ruipa Corridor would threaten its integrity, implying that it is the wild animals themselves who have carved out this Corridor space, and that it would be folly to try to resist this: as one workshop attendee stated, “it’s not exactly possible to control the elephants”. Here, the elephant, a flagship and highly charismatic animal, acts as a striking signifier for *intrinsic* nature – as discussed in section 2.1, a nature which is of an inherent and unchanging quality – and is used to argue against manipulating wildlife and, by extension, the Ruipa Corridor itself. There is also a strong sense that the Corridor space is determined by the animals themselves – that the Corridor may be inconvenient but cannot –

and *should* not – be argued away, threatened or manipulated. There is, of course, a tension here: if elephants cannot be controlled, then this comes with a significant cost for those who must live alongside the corridor space.



Figure 6.7 - Example of a beacon used to demarcate boundaries of PAs in Tanzania. This beacon shows you are entering Iluma WMA. Photo by AG.

This made discussions surrounding demarcation of the Corridor particularly revealing, since no respondents advocated for the use of fencing or other hard infrastructure in their hypothetical 'construction' of the Corridor space. Beacons were preferred by most respondents to demarcate corridor boundaries on the ground, just as they demarcate national park boundaries in Tanzania (see Figure 6.7). However, the same attendee who irked the other respondents with his suggestions for corridor identification made further controversial comments: "Corridors sometimes change depending on some issues, so I was thinking that the corridor should be there naturally, and if you put boundaries you're creating something artificial [...] Beacons don't look natural". As an alternative to *in situ* demarcation, this respondent suggested awareness and capacity building within affected communities, perhaps using *ex-situ* posters to warn people away from corridor areas "without destroying the natural appearance of the corridor". This person raises two points here: first, that it might be inappropriate to firmly demarcate corridor boundaries because they are dynamic and therefore subject to change; and second, that doing so would impose an undesirable aesthetic of artificiality on the landscape itself. In support of the use of beacons, other workshop attendees pointed to their established use in demarcating national park and game reserve boundaries, insisting that beacons performed the dual function of both clearly showing boundaries, and ensuring that no one could plausibly claim ignorance of them.

As part of the proposal for allowing people and wildlife to coexist somewhat harmoniously in the Valley, regional workshop participants advocated strongly and repeatedly for 'improving' livelihoods for those who live in the Valley area. As the workshop attendees explained, this would involve using technology to make both agriculture and grazing more efficient, thereby using less land. This strand of conversation dominated group discussion at times; two particularly vocal participants spoke in detail and at length about yields per hectare and modern breeds of cattle. There was also much discussion of how alternative livelihood pursuits such as bee-keeping and tourism-related activities would support local populations without placing a strain on resources in the same way extensive subsistence agriculture and livestock grazing does. The emphasis in the stakeholder workshop on technical knowledge, clearly ordered visual planning, and enforcement from above demonstrates a faith in technology and planning which resonates quite clearly with the *Righteous Corridors*

perspective explicated in chapter 5⁴², which places a similarly strong emphasis on the clear demarcation of space. This amounts to a project of social engineering intended to facilitate the free and ‘natural’ movement of wildlife, effectively by compelling and cajoling people to move out of their way.

This echoes Bluwstein’s findings on landscape conservation in northern Tanzania, which, he says, manifests as “a governmental project to rearrange and fix in time and space human populations to allow wildlife to thrive at the population level in an unbounded, abstract space” (2018, p. 163). This perspective is echoed clearly by the Natural Resource Officer for Morogoro Region (IN69, not attendant at the stakeholder workshop), who stated that “If we think the corridor should be free, but so far some corridors are passing within community land, we have to educate them and probably find them an alternative for that wildlife corridor to exist”. While this respondent conceded that some human activities might be compatible with the existence of a wildlife corridor, his response quickly – and typically – turned to emphasising the potential for “very serious conflict between pastoralists and wildlife”, and he ultimately proposed the WMA model as “one compatible activity that would let the corridor being [sic] there”.

When invited to think about desirable futures for conservation in the Kilombero Valley, attendees at the regional stakeholder workshop effectively fell into paternalistic planning mode, describing an imagined ideal future in which the people of the Kilombero Valley are facilitated to free up the Corridor area. Those assembled at the Kilombero Valley regional stakeholder workshop acknowledged that this process of restoration would be, if not exactly easy, then at least straightforward: the Ruipa Corridor would ultimately amount to an extension of the protected areas at each ‘end’ of the Corridor – a natural drawbridge extending across an anthropogenic moat. This would be achieved through a project of social engineering intended to facilitate the free and ‘natural’ movement of wild animals, effectively by clearing the landscape of human activity. This clearly resonates with Bluwstein’s research on landscape conservation in northern Tanzania, which, he says, manifests as “a

⁴² Note that there was no overlap between regional workshop attendees and Q study participants.

governmental project to rearrange and fix in time and space human populations to allow wildlife to thrive at the population level in an unbounded, abstract space” (2018, p. 163).

6.5 The future of the Corridor

This section outlines how various stakeholders understand the future trajectory of the Ruipa Corridor, based on their understanding of the situation on the ground.

6.5.1 “It’s not gonna happen”: turning away from the Ruipa Corridor

Many respondents spoke of the Ruipa Corridor with a sense of deep pessimism and disappointment. For some respondents, the changes that had taken place in the Valley over the past 10-20 years were irreversible. IN01 – the consultant working for KILORWEMP who based his assessment on drone footage of the Valley – described the wider Kilombero Valley area as “one of the most depressing ex wildlife areas I’ve seen”. On the Ruipa Corridor specifically, he expressed surprise that parts of the eastern side of the Corridor were still covered in forest. However, the extent of forest clearance on the western side made his overall assessment of the Ruipa Corridor quite bleak: “They’ve chopped it down. It’s history”, “In my view, forget it”, and “It’s gone”. He felt, in fact, that it might be more productive to “throw the corridor out the window”, and to focus on maintaining the remaining forest and floodplain land for its value as wildlife habitat, as opposed to as a corridor. When asked whether he thought maintaining the entire connection Udzungwa-Kilombero-Selous was important, he responded “Of course it’s important. But it’s not gonna happen. Are you gonna have an armed guard to escort the elephant?”.

Similar sentiments were expressed by IN66, a former trophy hunting tour operator who used to work in hunting blocks abutting the Selous Game Reserve. His assessments were based partly on personal experience and partly on hearsay – this person had not been to the Valley since shutting up his hunting operation permanently 2012, having (he reported) been scapegoated for a decline in wild animals caused by immigration and the Kilombero Valley Teak Company’s plantation blocks⁴³. In the course of our conversation, he reported that when he first arrived in the Valley in the early 1990s there were no cattle on the valley floor. He claimed that the presence of his hunting outfit had provided protection in the face of

⁴³ This is discussed in more detail in the following chapter.

unchecked encroachment (again, of Sukuma people specifically): “I feel so confident talking about my Kilombero stories because I was there for 20 years, and throughout our twenty years there was sustainability. Simply because of our presence. We may not have had the millions to put into technology and advanced anti-poaching [...] Our simple presence there allowed wildlife to exist.”. Of the Ruipa Corridor specifically, he commented “I believe that’s dead now”. For IN66, like IN01, the anthropogenic threat in the Valley is not only plainly evident, it is also overwhelming – a hostile force they perceive, now, to be unstoppable. They speak emotively, evoking an idea of a battle in which the ‘natural’ has lost ground over time, eventually reaching a tipping point after which connectivity can only be described as “history”, “gone” or “dead”.

Trevor Jones – lead author of the three reports from 2007, 2009 and 2012 discussed in the opening section to this chapter – reported that having witnessed the “decline of the Corridor” until around 2011, and “despairing” of the situation there, he “gave up on it, basically”. He believes that as time has elapsed and changes in and around the Valley have continued apace, the opportunities to preserve or restore large mammal movement across the Valley floor have diminished. While he did not claim that restoration of the Ruipa Corridor would be impossible, he did say that he would not be the one to attempt it. There is symbolic meaning in this person’s retreat from the Ruipa Corridor idea: one of the first and most vocal supporters of the Ruipa Corridor no longer feels he can invest time or effort into its protection or restoration.

Collectively, these professional stakeholders offer an impression of a Ruipa Corridor which is administratively fragmented, biophysically patchy, but which endures through remnants of forest cover combined with the persistence of some intrepid and dangerous large mammals. The language used by all three respondents to describe the demise of the Ruipa Corridor – of history, pre-history, death, and barriers to so-called natural movement – both evokes a sense of the Corridor as something formerly organic and living, and suggests a finality to its demise. They position the decline of the Ruipa Corridor within the overall decline of the former spectacle of the Valley, which they recall with a sense of nostalgia or even mourning. They also speak in terms of defence against a hostile force, or of the side of wild animals or the

'natural' losing ground over time, as wild animal movement is inhibited, severed or constrained in the face of anthropogenic pressure.

6.5.2 “To be honest the corridor is still good”: making the case for the Ruipa Corridor
Compared to those with a pessimistic outlook, those who believed that the Ruipa Corridor could function well as a pathway of wild animal movement through the Valley were few. These respondents retained a dogged hope that was nonetheless tempered by their experiences of ‘doing’ conservation in the Kilombero Valley. IN10, a conservation academic and consultant with years of direct research experience in the Valley expressed a belief that the Ruipa Corridor “can be restored”. She points out that “even to the areas where they [people] have invaded the animals are still passing”, and expressed a need to urgently “minimise the human activities” in order to make the Ruipa Corridor “viable” once again. In order to achieve this, however, she emphasised the importance of engaging with local people, whose lived experience of living and working in the Valley area is, she believes, more valuable than the privileged knowledge of “experts” and “elites”. She stated a belief, in fact, that “it is more of the technical knowledge of the experts which causes failures to conservation in Tanzania”. These views contrast with the sentiments expressed in the regional stakeholder workshop, in which attendees expressed a firm conviction that enforcing a corridor model ‘from above’ was the most appropriate way to protect ecological connectivity in the Valley.

IN67, the director of a small local conservation NGO, also expressed conviction – if not confidence – that restoring the movement of large mammals through the Ruipa Corridor area would be possible: “To be honest the corridor is still good, there are only some places where the corridor is blocked”. His conviction was tempered, however, by his own experiences of conservation in the Valley – particularly his disillusionment with big projects. He told me how disappointed he had been to learn that someone associated with the KILORWEMP project had told Trevor Jones that the Ruipa Corridor was not salvageable: “[Jones] told me like ‘yeah, I was there in this time of the year, but [redacted] told me like, now there’s nothing left in the Ruipa corridor’. [Jones] said, ‘I heard from [redacted] recently the Ruipa corridor is completely destroyed’”. IN67 continued: “And most of published article show that the Ruipa Corridor is completely destroyed! Someone can just sit in their office copying from Trevor and Frontier and then conclude like oh, the Ruipa corridor is completely destroyed. So this is the thing that

probably when someone from the top when they see this, they give [Ruipa] less priority.” This is an example of information spreading within a conservation community, contributing to the collectively-held understanding of a place and influencing where efforts are channelled. IN67 is aware of this, and feels keenly the potential loss of support from an influential corridor advocate like Trevor Jones. This suggests that IN67 perceives that all knowledge is not considered equal, and that his own beliefs about the status of the Ruipa Corridor, based on his lived experience and at odds with the beliefs of the senior KILORWEMP staff member, have less value and mobility as currency circulating within Tanzania’s conservation economy.

IN67 also drew attention to the fact that there has been no systematic or longitudinal monitoring of wildlife presence and movement in any of the purported Ruipa Corridor area – ‘natural’ forest, teak plantation, village, agricultural land or otherwise – since Frontier conducted their last rounds of transect research, which took place in limited areas in Ulunga district only, and were halted in 2011. This was recognised as potentially problematic by IN67, a former employee of Frontier who, at the time of data collection, ran his own small conservation NGO in Ulunga district: “We need to do the scientific survey. Like, first we find out if there are still mammals somewhere, or passing somewhere, and if there is, are they still using the same route? Or after destroying this route, then are animals deciding to change the route? [...] Or are they still passing in the destructed area? Or, there’s no animals passing at all? So if we first know that, then, [...] we can be more sure what should be done.” At the same time, however, IN67’s desire to collect systematic evidence on animal *follows from* his *already-established acceptance* of the Ruipa Corridor as a meaningful category and his *faith* that the Corridor can function again: “To be honest the corridor is still good, there are only some places where the corridor is blocked”. In other words, IN67’s faith in the existence of the Ruipa Corridor *precedes* his demand for evidence.

6.6 Discussion

Conversations about the Kilombero Valley of the past evoked emotional responses from interviewees. A ward councillor in Kilombero spoke – nostalgically – of how during his childhood it was not possible to walk in his village by foot after sunset due to the presence of dangerous wildlife. An academic who conducted her PhD research in the Valley said of its former beauty “you could cry”. A former professional trophy hunter said “There were 30,000

buffalo, 60,000 puku, lions everywhere. 12,000 hippo, 8000 elephant. It was real. One of the reasons I don't want to go back is I want to hold onto that image". There was uniform acceptance across both primary and secondary data that the Valley had changed, and respondents frequently showed a deep and genuine concern at the quality and pace of this change.

These respondents were also able to view the Kilombero Valley landscape through the lens of connectivity, having effectively been primed to do so by entering the discursive space created by the Jones et al reports, which then circulated among professionals working in conservation in the Kilombero Valley. They were therefore attuned to perceive the Ruipa Corridor in forest cover, and/or through scant instances of human-wildlife conflict. Some respondents had, based on their observations of these visible elements of the Ruipa Corridor, effectively given up on the Corridor as a lost cause. For those who retained hope that the Ruipa Corridor could flourish again in the future, meanwhile, the Ruipa Corridor seems to be almost an article of faith, given that there has been no systematic or longitudinal monitoring of wildlife presence and movement in any of the purported Ruipa Corridor area since 2011. Overall, though, while respondents may have differed in their feelings towards the Ruipa Corridor, all of them accepted the Ruipa Corridor as a conservation truth to a greater or lesser extent (although some more complex perspectives on the Ruipa Corridor are discussed in the following chapter). In the same way that the debates on the form and function of the corridor characterised points of difference between the *Righteous* and *Instrumental Corridors* perspectives explicated in chapter 5, in this chapter, respondents may have differed in their level of hope for the future of the Ruipa Corridor, but ultimately did not question its existence.

In their study of the Selous-Niassa Corridor discussed in section 1.4.2, Bluwstein and Lund speak of a "double territorialisation – of landscape and of mind" (2016). There is a comparable territorialisation of mind evident in the data presented in this chapter: the category of the Ruipa Corridor was generally accepted as a meaningful and appropriate conservation category by the range of stakeholders discussed in this chapter. In the Bluwstein and Lund study, territorial claims were sustained by a trail of 'debris' left by previous conservation actors and projects, which justified the continuation of conservation work in the area, and helped to bolster the idea of the Selous-Niassa Corridor despite overlapping claims to

territory and general confusion on the ground. A key difference from the Bluwstein and Lund study, however, is that here the territorialisation of *landscape* is comparatively lacking⁴⁴. As such, instead of an accumulation of ‘debris’ from conservation projects, conservation stakeholders in the Kilombero Valley draw from other knowledge sources in their invocations of connectivity, relating both to corridors specifically, and to their understanding of nature, people and conservation more generally. The knowledge that these actors gather together in their discursive engagements with the Ruipa Corridor come from e.g. the research and activities of Trevor Jones, TAWIRI and Frontier; interpretations of the movements of wild animals as expressions of ‘intrinsic’ nature, resonating clearly with Castree and Braun’s (2001) understanding of intrinsic nature outlined in section 2.1 of chapter 2; or a broad-based understanding of people as generally threatening to nature – with some groups of people deemed particularly so.

References to time – to a nostalgia for a Valley in its natural, prehistorical state when wildlife could roam free – also formed a strong current through the data presented in this chapter. This thread was present for those who were determined that the Ruipa Corridor could be ‘saved’, as well as for those who had effectively given it up as a bad job. There is also a strong sense that the Corridor space is determined by the animals themselves. However, these appeals to pre-history and the intrinsic need for wild animals to move in certain pathways are themselves predicated on an idea of the protected areas at either ‘end’ of the Corridor being natural entities themselves. This is something of a falsehood, given that the Selous Game Reserve is itself a product of colonial statecraft and deliberate efforts to manipulate wildlife behaviour, now positioned as a timeless ‘wilderness’ in the touristic discourses that are central to marketing Tanzania as a safari destination – as outlined in section 3.1.3. The discursive construction of the Ruipa Corridor is predicated on an understanding of, and nostalgia for, an intrinsic and wild nature which is itself socially constructed. This is perhaps indicative both of how “nature discourses become so deeply entrenched in both lay and expert ways of thinking that they themselves appear natural” (Castree, 2001, p. 12). It is also indicative of how international ideas about conservation can become “genuinely African”, as the consistent circulation and feedback of particular visions for African conservation are

⁴⁴ The village-scale attempt at creating a small forest corridor falling within the broader Ruipa Corridor space forms the focus of chapters 8 and 9.

internalised by key actors, particularly elites and middle classes (Adams and Hulme, 2001, p. 12).

The data explored in this chapter demonstrates that the Ruipa Corridor has a strong discursive presence, which has established the Ruipa Corridor as a conservation truth and, for many people, a conservation loss. This loss lingers almost like a ghost – akin to the ‘ghost safari’ in the headline of the Guardian article quoted in the introduction to Part II – over the Kilombero Valley landscape, with those who retain hope clinging onto faint echoes of a formerly wild and abundant connectivity, in the form of increasingly scant forest coverage and occasional instances of human-wildlife conflict. The discursive Ruipa Corridor continues to ‘haunt’ the Kilombero Valley conservation landscape even if the landscape itself conforms less and less with this vision. The charismatic wild animals that were the focus of the Jones reports on the Corridor might be conspicuous by their absence, but the circulation of the corridor concept which has found expression in the Ruipa Corridor, via the knowledge-generating activities of influential individuals and organisations, has evidently made a mark on the figurative conservation landscape of the Kilombero Valley. The ways in which this Ruipa Corridor truth-effect connects to material manifestations of the Corridor on the *literal* landscape is the subject of the following chapter.

7 Restructuring and repackaging the Ruipa Corridor

7.1 Introduction

In Chapter 6 I explored the discursive construction(s) of the Ruipa Corridor, and established that it has a strong discursive presence which echoes in professional circles even as wild animals remain conspicuous by their absence. This chapter turns to the manifestation of the Ruipa Corridor on the ground. I discuss two areas falling within the purported Corridor space and considered to be key to its ecological functioning. First, I discuss Namwai Forest, a ‘natural’ forest (or forest that is considered by many respondents as ‘natural’) located towards the western ‘end’ of the Ruipa Corridor. Second, I discuss Nakafulu Block, a commercial teak plantation area under long-term commercial lease by the Kilombero Valley Teak Company (KVTC), located at the eastern ‘end’ of the Corridor. I suggest that the strong discursive presence of the Ruipa Corridor has fostered the enrolment of these two discrete and disparate forest spaces into the ‘original’ Corridor spatial imaginary, and led to the further enrolment of just *one* of these forests into a ‘new’ Corridor spatial imaginary.

7.2 The material presence of the Ruipa Corridor

7.2.1 Namwai Forest

*“You cannot talk about Namwai forest without talking about corridor”
(IN13 – Mofu ward councillor, Kilombero District)*

Namwai Forest is located in Kilombero District Namwai Forest is a ‘natural’ forest, located in uplands on the northern-western edge of the Kilombero Valley and falling within Kilombero District (Figure 6.1). At the time of data collection in 2018, Namwai Forest did not appear to have any agreed-upon formal protection: it had effectively functioned as a shared forest resource between three villages. This forest is repeatedly positioned as key part of the Ruipa Corridor. Jones et al (2007) described Namwai as being “in the core of the corridor” and “[forming] a critical section of the Ruipa Corridor”; Frontier wrote of Namwai’s degradation in their second annual report on their Ruipa Corridor project⁴⁵ (Bamford, 2011); in Jones et al’s paper in *Tropical Conservation Science* Namwai is described as “a key section of the Ruipa Corridor”(2012); and KILORWEMP specified the urgent need for action “in most degraded

⁴⁵ ‘Conserving the Ruipa Corridor: facilitating cohesive management between diverse stakeholders’ – to be discussed in chapters 8 and 9

areas like Namwai forest in order to restore Ruipa Corridor” in their proposed Integrated Management Plan for the Valley area (Daconto et al., 2018). Interview respondents also positioned Namwai as integral to the Ruipa Corridor: “You cannot talk about Namwai forest without talking about corridor” (IN13 – Mofu ward councillor, Kilombero District); “Actually, [Namwai] is part of the Ruipa Corridor (IN14 – District Forest officer, Kilombero District); “[Namwai], apart from being forest reserve, it is also a wildlife corridor” (IN15 – junior planning officer, Kilombero District); “I think it's part of the Ruipa corridor too” (IN22 – wildlife officer Kilombero GCA).

As well as being considered key to the ecological functioning of the Ruipa Corridor, Namwai Forest is also considered to be something of a hotspot for the Sukuma immigration described in the previous chapter. The village of Ihenga, which borders Namwai, was described to me by a local councillor (IN13) as “a completely new village, and the majority of the people who are living there are the Sukuma”, who followed up by saying “We normally joke to them, they have got a problem with trees. We tell them, any Sukuma when he finished eating, he took his axe, go to the tree, *chop*”. A junior town planning officer at Kilombero District council (IN15) told me “Namwai forest reserve has been destroyed by immigrants. Those livestock keepers, the ones who have destroyed the area. But indigenous you may not find them there, at all. They’re not there”. In short, the farming and settlement activities of Sukuma people are identified as the primary cause of degradation of Namwai forest, as they are for the Ruipa Corridor more broadly.

Demarcation, or rather lack thereof, was raised in discussions of Namwai forest. IN14, district forest officer for Kilombero District, spoke of a desire to plant beacons to mark forest areas: “But we wanted to establish, to put the permanent boundaries. Signs. Beacons. Of which a person can see at a far, at a distance. That if I cross from point A to point B, I will be in or out of the forest. [...]. Because now some people are complaining 'I don't see the clear boundaries...' So, we are trying to make sure that if we put beacons, and they will tell people that you are in the forest. Because the beacons are...are visible. So I think it will be easy for us to, to make sure that people evacuate that area.” This echoes the sentiments about beacons outlined in section 6.4 of the previous chapter: to clearly show borders, and to

eliminate any claim to plausible deniability. However, data from IN22, wildlife officer at Kilombero GCA, complicates this perspective. His data hints at the legal ambiguity surrounding the Namwai Forest, which he states is a “forest reserve” under either district or village authority. IN13 (ward councillor in Kilombero) explained that he has been trying to coordinate his constituent villages into agreeing to make Namwai Forest into a village forest, suggesting that the forest is not yet under any kind of legal protection. It is therefore unclear what the legal status of the forest actually is. Nevertheless, IN22 also refers to the “newcomers” settling and farming on the forest as “encroachers”, explaining that they “are not there lawfully” and that district authorities have struggled to remove them. He also claimed that village leaders sometimes ‘sell’ Namwai Forest land to the “newcomers”, meaning that those settling and farming in Namwai sometimes have receipts to bolster their claim to the land. This pushes the matter into court: “And when the issue is in court they [the “newcomers”] will also still be there. They will be living there, blowing (sic) the corridor”. Our impression of Namwai Forest so far is of porous borders, unclear legal status, and limited resources and political will to remove so-called ‘encroachers’ from forest land.

There are currently no external organisations working on or involved in plans for protecting or restoring the Namwai Forest – much to the disappointment of some stakeholders. During a workshop held by KILORWEMP for stakeholders in Kilombero District, IN13 (local councillor in Kilombero District) was perturbed by the omission of Namwai entirely from a presentation about the status of the Ruipa Corridor: “I was very surprised to hear [KILORWEMP’s] presentation does not talk in detail about Namwai Forest. Us villagers and ward councillors in [my] ward, we have done our best to make some steps about conserving that place. So [...] not to talk about that one, it was very disappointing”; and “I said [during the workshop] you cannot protect south without north. So those animals, where are they going? Where will they go? You open that place [the southern/eastern side of the Ruipa area], so they’re starting to move from Selous into Kilombero Valley. Now what is their destination?”. For IN13, KILORWEMP’s omission of Namwai forest from their public discussion of the Ruipa Corridor was both disappointing and perplexing. In a separate conversation, a senior representative from a wildlife conservation NGO active in Kilombero District reported that his NGO would

not become involved in any efforts to protect Namwai Forest until the “political situation” there was resolved.

It was not made explicitly clear the exact nature of this ‘political situation’ that makes organisations wary of involving themselves in the protection of Namwai Forest. However, we can speculate that this has something to do, again, with Sukuma immigration. IN13 and IN17, local councillor and Kilombero District Wildlife Officer respectively, both described how attempts to remove settlers and farmers from within Namwai forest had been discouraged by those in a higher position of authority within the district council, and both hinted that this was related to tribal affiliations. For example, IN17 remarked “We have failed many times [to remove people from Namwai]. You get an order from above saying ‘stop that exercise immediately’ and you have to obey”, while IN13 even suggested that the Regional Commissioner for Morogoro Region was aware of the issues at Namwai Forest, but that the (Sukuma) District Commissioner for Kilombero was still able to thwart conservation efforts there – “If you go there and talk [to the Regional Commissioner] about Namwai Forest you can know everything about Namwai Forest. But the issue is this [District Commissioner]”.

The porosity of Namwai’s borders, its unclear legal status, and the capacity of individuals to apparently bypass laws on village-level land allocation are particularly problematic in a district where resources are scarce and the social, political and ecological situation on the ground is complex. It is resulting in a situation in which this (allegedly) key area within the Ruipa Corridor can be “unmade”, so to speak, with minimal consequences. Namwai was already described by Jones et al as being “rapidly destroyed” over 10 years ago (Jones et al., 2007, p. 25). Still it remains with no formal protection. Respondents spoke of the difficulty in securing Namwai forest from further destruction as an ill omen for the future of the Ruipa Corridor; IN13 (ward councillor in Kilombero), IN17 (district wildlife officer for Ulanga) and IN49 (senior staff member at an African conservation organisation) all highlighted that the protection of Namwai Forest requires coordination and agreement between just three villages, and that this so far has proven impossible⁴⁶. As well as Namwai Forest, the broader Ruipa Corridor area covers up to thirteen villages, as well as a wildlife management area, a game controlled area,

⁴⁶ Note that IN13 was keen to emphasise that this was not due to lack of effort or energy from him or the village council of Ihenga – a village in his ward of Mofu

privately leased land and roads. From this short discussion of challenges faced in just a single bounded area within the Ruipa Corridor, we already begin to understand the level of effort and determination that would be required to somehow secure, restore or protect the entire 25km² of claimed Ruipa Corridor area.

7.2.2 The Nakafulu Block

“Now the question is, you can ask yourself, what would happen if there is no KVTC?” IN45, social manager KVTC

The Kilombero Valley Teak Company (KVTC) was originally established in 1992 by the British Commonwealth Development Corporation; it is now jointly owned by the Africa Sustainable Forestry Fund (managed by a large private investor in sustainable forestry), and the Finnish Fund for Industrial Cooperation Ltd (a Finnish development finance company). Day-to-day, KVTC’s activities are managed and carried out by a team of Tanzanian managerial and operational staff, headed by a non-Tanzanian. Nakafulu Block is the largest of four teak plantation areas leased and managed by KVTC in the Kilombero Valley area, and is located in Ulanga District at the eastern edge of the Valley’s floodplain, directly bordering the Kilombero GCA (Figure 6.1). Village lands border the plantation immediately to the east: these villages entered into land use planning agreements with KVTC, and receive benefit from the proximity of KVTC in the form of a village social fund, participation in outgrower schemes, and employment⁴⁷. However, the land use planning processes that led to KVTC’s private leasing of this large parcel of land are perceived to have been opaque and with no village involvement, resulting in an agreement made directly between KVTC and the Ministry of Land (IN06; Bamford et al., 2010).

The area itself is not entirely planted with teak – of the 28,000 hectares across KVTC’s four managed blocks, around 8,000 are industrial teak plantation. The remaining 20,000 hectares are “under active conservation”: according to KVTC data, 4,000 are grasslands and wetlands,

⁴⁷ While a detailed discussion of the specifics of these benefits is beyond the scope of this research, interview data with leadership and residents of villages bordering the KVTC plantation (Nakafuku, Kichangani, Milola) and with employees within Ulanga District government (IN60) demonstrates that there are mixed feelings towards KVTC and the benefits accrued to villages from KVTC’s presence in the area.

and 16,000 are “natural forests” (KVTC, 2018, p. 4). KVTC states that “The last remaining wildlife corridor connecting the Udzungwa Mountains and the [Selous] game reserve flows through KVTC. By actively conserving the natural habitats within our boundaries [...] KVTC plays an important role in protecting the region’s wildlife”. In these materials, which includes the stylised map shown in Figure 7.1, KVTC are clearly positioning their plantation lands as a conservation ‘good’ in the Kilombero Valley area, specifically by helping maintain connectivity between the Udzungwa and Selous ecosystems. In Figure 7.1, they describe how their “mosaic layout of teak compartments and conservation land allows wildlife to easily pass through and take refuge on KVTC land”. Figure 7.2 shows the sharp distinction between KVTC’s teak plantation areas and ‘conservation land’.



Figure 7.1 - Detail of illustration from KVTC 2018, showing the mosaic planting layout of the Nakafulu Teak Plantation Block, with an arrow giving a stylised representation of wildlife movement through the block between UMNP and SGR



Figure 7.2 – Photograph from roadside, Ulanga District, showing sharp distinction between vegetation characterised as forest (left of bike) and teak plantation (right of bike), taken by AG

IN19, a manager at KVTC, stated that based on his observations he believes that the changes to wildlife presence and movement that have taken place in the Valley are “probably a reflection of, not so much what’s happening in the KVTC land, which has stayed pretty constant, but more so the increased level of farming outside KVTC land”, and that from looking at satellite images “KVTC stands out quite significantly from surrounding landscapes [...] It’s really become little islands of forest left”. He also said “You can take the view that if KVTC would not have been here and hypothetically nobody would have gone into the land that we now occupy, then yeah, things would have been better. But that’s not the reality. As we see all around us”. IN45, KVTC’s social manager, spoke along similar lines: “We have tried to keep intact our land, as naturally as possible. So the only issue is outside our boundaries, not inside our boundaries. Now the question is, you can ask yourself, what would happen if there is no KVTC? Evidently the whole of the land would be maybe settled or human impacted”. Though the primary aim of the teak plantation blocks is to generate profit for KVTC, these interviewees consider the Nakafulu Block as a vestige of ‘natural’ connectivity in an otherwise anthropogenically transformed area.

There are other stakeholders outside of the organisation who also believe that KVTC's presence has overall had a positive – or at least neutral – impact on large mammal movement in the area. IN67, who has conservation experience in Ulunga District working on and off for Frontier since the late 2000s, said of KVTC land “I think KVTC are doing a great thing. They set aside a big land. Probably later, after 99 years it can be used as a protected area or something”. IN72, who worked on Frontier's corridor project in the Valley as a project manager in 2011 and 2012, said that in his experience KVTC were “pretty good”, citing instances of KVTC's cooperation with Frontier on biodiversity surveying projects. IN60 (Ulunga district representative to KILORWEMP) described KVTC's land as “forming a good part of the corridor [...] They have their land called mosaic [...] But that mosaic is a natural forest. They don't cultivate there. So this mosaic issue is contributing a very good corridor approach”. IN21, project manager for Kilombero GCA, said that “It's not a problem those plantations. Because plantation people, they're bordering our area, sometimes they're doing their patrol as well in their area. [...] We cooperate with them”. The assessment of KVTC's activities as good for conservation are based on vegetation cover and their capacity to defend a bounded area of land. Once again we are presented with an impression of a corridor that is predicated on conservation's territorial fix, and which suggests a preoccupation with structural connectivity. The demarcation KVTC land is made very clear on the ground (Figure 7.3, p157).

Despite the missives in KVTC literature and the interview data discussed above, the benevolent role of the Nakafulu Block within the Ruipa Corridor is not accepted by all stakeholders. IN12, a former project coordinator for Frontier who worked with the organisation in the 1990s and early 2000s, was particularly vocal about the negative impact of KVTC's plantation activities. He had been involved in a Frontier project conducting biodiversity surveys of KVTC land, to help KVTC plan which areas of miombo woodland to cut and which to preserve as part of their mosaic planting layout – including the inclusion of ‘corridors’ of natural forest: “And they said they were gonna retain these corridors. And they did. But these corridors were only like, 500 metres or a kilometre wide. They were absolutely far too narrow for words”. IN12 also commented on KVTC's use of electric fences to protect the teak saplings, claiming that Frontier fought to get them either removed completely, or at least adjusted to allow smaller animals to pass. He cites the fact that KVTC no longer use electric fencing as evidence *not* that KVTC want to preserve wildlife movement, but rather

that there is no longer any wildlife moving through the area: “They’ve now taken the electric fences away. What does that tell you? There aren’t any animals left [...] If there were still enough animals to be causing damage to make it worth running the electric fences, they’re a commercial enterprise, they’d still be running the fences”.



Figure 7.3 – Photograph from roadside, Ulanga District, showing clear demarcation of KVTC land with KVTC branding, using concrete beacons similar to those used for national parks and game reserves (see Figure 6.7). Taken by AG.

IN66, formerly an owner-manager of a commercial hunting company that operated in the Valley⁴⁸ from the early 1990s until around 2010, also believes that the use of electric fencing had an impact on large mammal movement in the area. Based on his personal experiences of assisting villages in dealing with ‘problem animals’, he believes that the use of electric fencing in the Nakafulu Block led to increased human-wildlife conflict in the surrounding areas, by forcing wildlife to forge pathways of movement through village land instead. He said that even though “on paper” the presence of KVTC did not affect his hunting block, it did “[pressure] the local populace to push their farms and their activities further into the valley.

⁴⁸ Hunting blocks can be assigned in game controlled areas; this person operated within the Kilombero GCA

And that's where the trouble happened". He describes how, combined with the pressures of immigration and the corresponding increase in heads of cattle, he began to see rapid change in the Valley: "It was wildlife territory, and suddenly the people were camping out there, farming out there. And the local government was very weak. They couldn't oppose". IN10, a conservation consultant and academic with decades of experience in the Valley area, echoed these concerns, stating a belief that KVTC's presence has been "forcing the people to concentrate into other areas. Because [KVTC] have taken up places where people would have done activities [...] Because if you're taking a big, big chunk of land and you're taking it away from the population, where they will earn their living?".

From the village perspective, there was little scope to offset the opportunity costs and burdens from KVTC's presence: according to data from a village workshop in Kichangani, and from interviews with the chairmen from both Ulanga and Kilombero districts, there was little opportunity to gain employment at KVTC, and villages with land leasing agreements with KVTC received only negligible amounts of money each year. Further, these respondents also took issue with KVTC's tracts of 'natural' forest corridor. Surrounding villages expressed ire that their residents were not permitted to farm or graze in KVTC-owned land that was not planted with teak – what KVTC staff refer to as 'natural' forest corridors – which some villagers perceived to be "unused". As a result, the boundaries of KVTC land were sometimes breached by people looking for land to farm or graze, or even to poach timber (IN04, village executive officer Ikungua; WS04, Ikungua; IN35, environmental officer KVTC).

7.2.3 Ruipa East; a road to nowhere?

Namwai Forest and KVTC's Nakafulu Block are two distinct places falling within the claimed Ruipa Corridor space, both of which are considered critical to movement of large mammals. The terms in which these discrete forest areas are discussed by respondents presents a specific impression of Namwai as a vulnerable 'natural' forest lacking the clear boundaries, sense of ownership, and resources for protection which are available to the privately-leased Nakafulu Block. Ultimately there is no way of knowing how the Valley landscape would have changed, or how wildlife would have fared, in a hypothetical world where there was no KVTC, no commercial teak plantations, and no 'natural' forest corridors retained within them. Additionally, there has been no scientific monitoring of wildlife presence or movement within

KVTC land since Frontier’s biodiversity surveys referred to by IN12, which took place some 20 years ago. Nonetheless, the legal and aesthetic clarity of KVTC forest contrasts sharply with the legal ambiguity and perceived porosity of Namwai forest, allowing KVTC supporters – or those who support a more ‘fortress’ approach to conservation in the Valley more generally – to position Namwai as a ‘degraded’ area and bolster their claims that the overall conservation status of the Valley would have been worse without KVTC’s presence. In short, the capacity of KVTC to extract profit from its rented land affords the ‘natural’ forests traversing the teak plantation with same level of protection as its commercially valuable counterparts, ensuring that the borders between KVTC and non-KVTC land, and between teak plantation and natural forest areas, are clearly visible, presenting at least an *impression* of connectivity .

This troubles understanding of concepts like ‘natural’ and ‘degraded’ in the context of the Kilombero Valley. The designation of Namwai as ‘degraded’ is predicated on an understanding of connectivity as unbroken areas of forest cover, rather than an assessment of motility or presence of specific wildlife species; once again, as discussed in chapter 6, there is a privileging of structural connectivity over functional. As such, the epithet of ‘degraded’ is never applied to KVTC’s teak plantation area – even by those who view KVTC’s presence negatively – despite the fact that large swathes of this land are planted with non-native teak species. In professional conservation and planning circles in the Valley, the dominant understanding of degradation corresponds to an absence of forest cover, which does not account either for an assessment of structural connectivity for wildlife species, or for the fact that some people in the Valley may not perceive the Namwai landscape as ‘degraded’.

This constitutes a somewhat paradoxical understanding of the Ruipa Corridor space: KVTC’s Nakafulu teak plantation block effectively exists as an ‘island’ – to quote IN19 – containing vestiges of so-called ‘natural’ forest corridors. As such, if the overall aim of the Ruipa Corridor is to provide connectivity between the Udzungwa and Selous ecosystems through aesthetically unbroken and contiguous forest spaces, this cannot be achieved with disparate and discrete patches of forest, managed under completely separate jurisdictions and management plans. Somewhat counterintuitively, however, the differences in land management between Namwai Forest and the Nakafulu Block, the corresponding perceived differences in levels of ‘degradation’ between these two areas, and the pace and severity of

change happening in the Ruipa Corridor space more generally, have in fact contributed to the emergence of a ‘new’ Ruipa Corridor space: Ruipa East. Ruipa East is the name given to the Eastern side of the Ruipa Corridor area by the KILORWEMP project – Figure 7.4 shows a poster displayed at their final workshop, in which attendees⁴⁹ were presented with the main results and recommendations resulting from this six year project. This poster, as well as a presentation made during the workshop, and KILORWEMP’s document ‘Ruipa East Wildlife Corridor Plan’ (an appendix to the Integrated Management Plan which makes recommendations at a strategy level, see Daconto et al., 2018; and Daconto and Games, 2018), collectively suggest that the eastern part of the Ruipa Corridor is the only salvageable section, and as such, it would be practical to focus protection and/or restoration efforts there. While KILORWEMP’s Ruipa East Wildlife Corridor Plan (Daconto and Games, 2018) is more nuanced in its assessment of the differences between the western and eastern sides of the Ruipa Corridor, this is lost in the blunt messaging conveyed by KILORWEMP’s focus on Ruipa East in its final workshop.



Figure 7.4 – Detail from poster entitled ‘Sites of conservation importance’, on display at KILORWEMP Final Workshop, Dar Es Salaam, 25th June 2018, taken by AG

⁴⁹ There were 86 attendees, representing regional and district government, multiple conservation NGOs, TAWA, Sokoine University of Agriculture, the Ministry of Natural Resources and Tourism, KVTC, the Belgian and Swiss embassies, Enabel, GIZ, the EU and the World Bank. For a full list of attendees see Enabel (2018)

KILORWEMP's decision to carve off part of the Ruipa Corridor in this way has several implications. First, the messaging around Ruipa East excludes from the frame of consideration the potentially negative ecological impacts of the Nakafulu Block, as discussed in section 7.2.2 above. While Nakafulu Block's stretches of uninterrupted 'natural' forest give an impression of connectivity, and are considered by KILORWEMP to constitute "the last remaining natural habitat on the floodplain margins in this area" (Daconto and Games, 2018, p. 37), there has been no systematic or scientific surveying of wildlife presence to support this. Once again, in the Ruipa Corridor, structural connectivity appears to take primacy over functional connectivity.

Second, we must consider the impacts of incarnations of the Ruipa Corridor – in whatever form – *beyond* the site of the meeting. Corson et al (2014) argue that meetings are important sites for the construction and maintenance of discourse coalitions, where narratives coalesce and shared languages are generated and become institutionalised. The KILORWEMP workshop acts as a site of amplification for their messages. In their repeated invocations of the Ruipa Corridor, KILORWEMP further sustains the perceived legitimacy of the corridor concept in general – a clear example of how certain words, concepts and knowledges rise to the top during the formation and maintenance of discourses. The workshop attendees were left with an impression that possibly only half of the Ruipa Corridor is even worth *attempting* to save. This would perhaps come as a blow to IN67 who, as detailed in section 6.5.2, was disheartened and disappointed to think that influential conservation actors had already given up on the Ruipa Corridor.

Third, the existence of a threatened but salvageable Ruipa East also implies the existence of a 'lost' Ruipa West. which begs the question of whether even *that* half is worth saving. If there is no connectivity 'beyond to the Udzungwa Mountains', as per the poster shown in Figure 7.4, is this still a corridor? Where does that highway go to? Indeed, some respondents posed similar questions. IN57, a TAWIRI staff member who had worked on corridor projects elsewhere in Tanzania, commented that so much of the Valley and its surrounds had been converted to agriculture and pasture that the term corridor may no longer be applicable: "So the question is, corridor to where? Are we talking corridor, or are we talking dispersal area?".

IN63, a senior staff member for KILORWEMP, said “Not even the wildlife authority goes there and says hey, everybody out, we want a wildlife corridor there. It doesn’t happen. Plus you know even now, even if you do that, it’s a corridor from where to where? [...] There’s no wildlife to move there. You cannot pursue a corridor for the sake of a corridor”. IN01, who worked as a consultant for KILORWEMP, and who described the Ruipa Corridor as ‘history’, asked, exactly like IN57 and IN63, “A corridor to where?”. He also suggested, given the extent of (what he perceives as) degradation, we might instead call the area the ‘Western Selous movement area’, but noted that this would not “sound as good”. Additionally, in reference to his experience of corridors more generally, IN01 stated a belief that “People use the word ‘corridor’ very loosely”. His comments would seem to hint at an appreciation for the weight carried in the word ‘corridor’.

7.3 Discussion

While the discursive presence of the Ruipa Corridor is well-established, as discussed in Chapter 6, the Corridor manifests materially as discrete patches – corridor islands? – within an area which is administratively fragmented and difficult to govern. This chapter has explored only *two areas* falling within the claimed Ruipa Corridor space, and the difficulties are already evident. There is a diversity of stakeholders falling under the shadow of the Ruipa Corridor in the Valley: the quasi-protected community forest of Namwai and the private interests of KVTC; not to mention Iluma Wildlife Management Area, 13+ villages and all their inhabitants, two different administrative districts, and the Kilombero Game Controlled Area. Drawing them together into a coordinated effort to ‘restore’ or protect the entirety of the connection between the Udzungwa and Selous ecosystems would take huge amounts of effort and resources. This perhaps explains the insistence of those in the regional stakeholder workshop, as discussed in chapter 6, that in order to thrive the Corridor would have to be imposed from the top down, and administered preferably as a single protected area. It might also explain their disappointment with the corridor regulations of March 2018, which they described as “very complex”, accompanied by much tutting and head shaking.

At the same time, however, the emergence of Ruipa East is evidence of the discursive resilience of the corridor concept in the Valley. Ruipa East represents an interesting inversion of the phenomenon described by Lund et al (2017) in their article ‘Promising Change,

Delivering Continuity’, referenced in the discussion of conservation narratives and fads in section 2.2.2. In this article, the authors suggest that the promise of change is a discursive commodity in itself in the industries of conservation and development, and that as a result, there is an incentive for the perpetual delivery of policy and strategy ideas which *appear* new, but are in fact old ideas in different packaging. Ruipa East, however, is a space which does not connect the Udzungwa and Selous ecosystems, but which still carries the original Ruipa name – and as such, is a decidedly *different* package, but presented in the old packaging. The *idea* of the Ruipa Corridor persists in the Kilombero Valley: even as parts of the Corridor appear to die away, the remnants are almost animated into a corridor by the unwillingness of those around it to abandon the idea completely. If the discursive presence of the Ruipa Corridor explicated in chapter 6 was ghostly, then the material manifestation of the Corridor in the form of Ruipa East is like a corridor zombie – undead rather than alive.

This also speaks to conservation’s territorial fix as discussed in section 2.3.2 of chapter 2. In this instance, the territorial fix persists, with a focus on the one ‘side’ of the Ruipa Corridor that still *appears* to be intact based on remaining forest cover. There remains an emphasis on maintaining some kind of spatial solution to the issue of connectivity in the Kilombero Valley even when, as outlined in section 7.2.3, three somewhat sceptical respondents asked, independently of each other, ‘A corridor to where?’. Indeed, two of the three respondents asking this question nonetheless orientated themselves *towards* the corridor as part of their work with the KILORWEMP project, even as individually they expressed some doubt about the utility of the concept, given how much change has taken place in the Valley.

Ultimately, the corridor concept will persist in the form of Ruipa East through KILORWEMP’s final report annex on the Ruipa Corridor, which will be stored in an office of Tanzania’s Ministry of Natural Resources and Tourism. The Ministry can choose to either act on the recommendations or ignore them, and at this point we cannot know what they will choose. The point here is that the emergence of Ruipa East and its reification in the KILORWEMP literature has carved out a space of *potential* within Tanzania’s broader conservation corridor assemblage, creating a possible channel for future conservation strategy in a particular direction. This is an example of how assemblages can “groove present practice, and serve to

anticipate different futures” (Lorimer, 2015, p. 10), even in the absence of a “master-mind or totalizing plan” (Li, 2007b).

Part III: The local corridor

Part I of this thesis explored professional perspectives on the corridor in the abstract, and proposed that the dynamic between the three perspectives revealed helps explain the burgeoning hegemony of the corridor concept even when there is a lack of consensus on exactly what they are, what they should do, and how. Part II was an explication of the idea of the Ruipa Corridor – a claimed corridor space at the (broadly defined) regional level. It explored its identification and naming, its establishment as a conservation truth and a conservation loss within the Kilombero Valley conservation community, and the persistence of the corridor idea in the Kilombero Valley. It argued that the Ruipa Corridor has a powerful discursive presence – many facets of which align with ideas on corridors encapsulated in the perspectives in Part I – and that this discursive presence works to ‘co-opt’ particular spaces into the Ruipa Corridor concept.

Part III is an exploration of the most material, or ‘concrete’, expression of a conservation corridor explored in this thesis. This part, containing two empirical chapters, collectively conveys the story of how two villages falling ‘within’ the claimed Ruipa Corridor space, Kichangani and Ikungua, became embroiled in a donor-funded, voluntourism-executed attempt at creating a joint, interdependent village corridor area, intended to contribute towards the restoration of the Ruipa Corridor. Table 3.3, presented on p72 in the context-setting chapter, provides an overview of the key players in this ongoing story.

Chapter 8, the first chapter of Part III, discusses how Frontier, a voluntourism organisation, ‘introduced’ a designated wildlife corridor into the village land use plans of Kichangani and Ikungua villages as part of a project discursively tied to the Ruipa Corridor. I discuss both ‘official’ and alternative narratives, and explore this corridor’s subsequent alignments with village planning mechanisms and professional planning practices on the ground. Chapter 9 explores how the corridor is experienced by those who must live with – or indeed within – the alleged village corridor space. It discusses this in a general sense through household survey data, then picks up a case study of a single resident who found himself living ‘in’ the Kichangani-Ikungua corridor on the Kichangani side. I also discuss some quite sensational claims made by a former Frontier employee who was involved in the Kichangani-Ikungua

corridor project, which cast both the corridor itself, and the claims made about it, in an entirely new light. Together, the chapters of Part III represent the more material counterpart to the discursive explications of corridor space provided in Parts I and II, showing what happens when these discursive elements ‘touch down’ in a specific place and articulate with the messy realities of everyday life.

8 The Kichangani-Ikungua Corridor: The long and winding road

8.1 Introduction

The subject of this chapter is the attempt to formally designate wildlife corridor land in the villages of Kichangani and Ikungua – the only attempt to set aside specific corridor space with the aim of restoring the Ruipa Corridor. In section 8.2, I provide some brief contextual information on life in the two field site villages discussed in this chapter. Section 8.3 introduces the ‘official’ story of the Kichangani-Ikungua corridor, as gathered through reports from Frontier. Section 8.4 details some alternative interpretations of the respective corridor stories from Kichangani and Ikungua, primarily from the perspectives of village leadership. In 8.5 I explore how and to what extent the corridor is ‘performed’ by professional stakeholders working on conservation and/or planning in the Kilombero Valley area. By interrogating the narrative of how the corridor ‘touched down’ in these specific villages as part of a donor-funded project, I will reveal how this village-level attempt at creating ecological connectivity does not live up to its ostensible appearance as an exercise in participatory community-based conservation.

In this chapter, I draw primarily on household survey data, documentary review, semi-structured key informant interviews, group and individual interviews with village leadership, and observational data from transect walks.

8.2 Life in Kichangani and Ikungua

Kichangani and Ikungua are two neighbouring villages in Ulanga District, situated at the south-eastern edge of the Kilombero floodplain. These villages fall within the claimed Ruipa Corridor area, contiguous with Kilombero Valley Teak Company’s Nakafulu block to the west, and the Selous Game Reserve to the east, as indicated in Figure 8.1 below. At one time Ikungua was part of another village – Idunda, which borders Ikungua to the south. They separated into two separate villages around the year 2009 (Bamford et al., 2010), and Ikungua is significantly smaller than Kichangani. The purported Kichangani-Ikungua corridor falls over the border between Kichangani and Ikungua, running broadly in an east-west direction (Figure 8.1), ostensibly connecting the Kilombero Game Controlled Area (via KVTC’s Nakafulu block) to the Selous Game Reserve (via an area of village forest). There is one main road running between Ifakara and Mahenge towns (district capitals for Kilombero and Ulanga respectively) which is

mostly unpaved, other than sections around Ifakara and Mahenge. The road is used mainly by small buses or shared taxis transporting people and goods, trucks transporting agricultural goods, motorcycles or bajajis (tuktuks), or very occasionally by private vehicles.

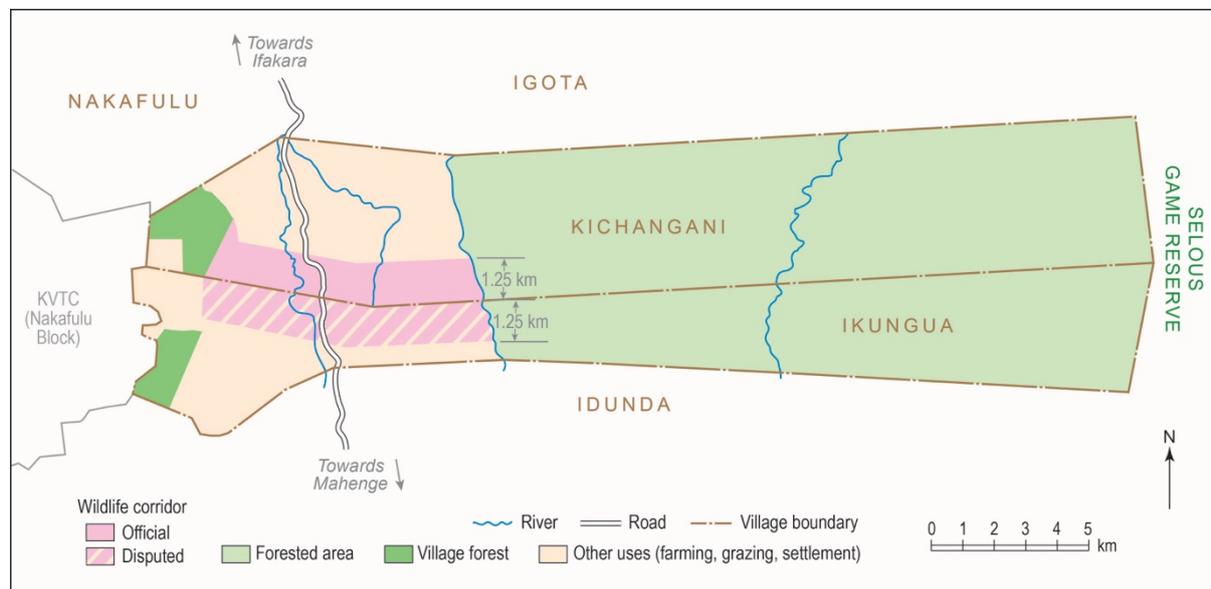


Figure 8.1 - Map showing location of Kichangani and Ikungua villages, and the location of the (purported) corridor space shared between the two villages. Note that this is a simplified composite of 'official' village maps for Kichangani and Ikungua, shown in this chapter as Figure 8.4 and Figure 8.6 respectively, and is intended primarily to make clear the approximate position of the wildlife corridor. Map by Phil Stickler.

Household survey data collected in the two field site villages show that rice and maize are by far the most popular crops grown (see Figure 8.2, which also shows other crops commonly grown). Crops are grown for either subsistence or business (i.e. selling locally). Farmers in the area often have two plots – one towards the floodplain (for rice) and one higher up (for other crops), as a risk management strategy against either flooding or drought (pilot trip). Livelihood activities are dominated by agriculture, with 186 respondents naming it as their most important livelihood activity, and 10 naming it as their second most important. Some residents – mainly Sukuma, discussed below – also herd cattle, which can lead to tension between herders and settled agriculturalists. Most households lack a power supply, with 29 households out of 200 reporting having power. Houses are mainly constructed with bricks walls (127), with a significant proportion built with mud (69), and rooves are constructed mainly with iron (113) or grass (73).

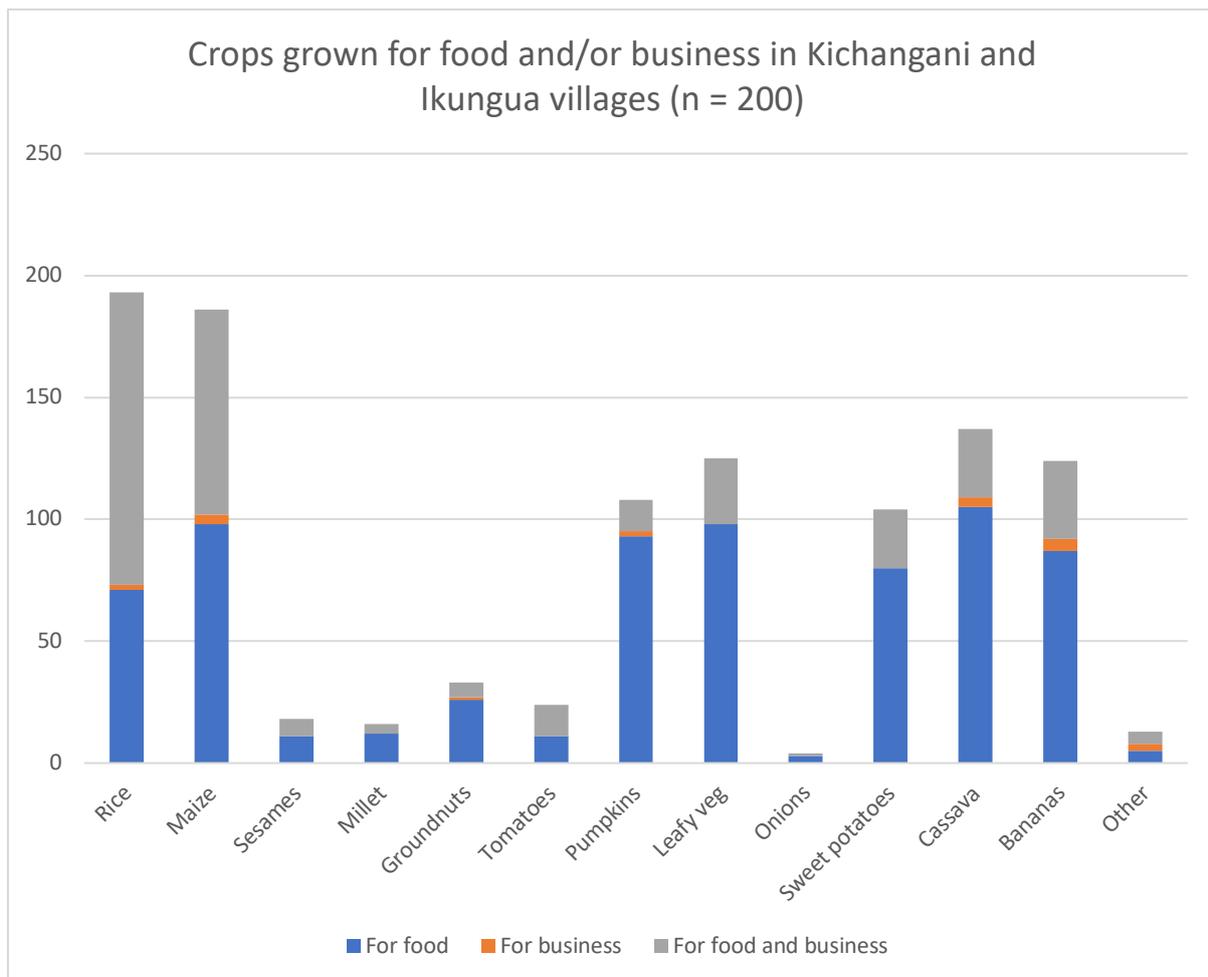


Figure 8.2 – Crops grown for subsistence or business in Kichangani and Ikungua villages

8.3 A linear narrative

As alluded to throughout chapters 6 and 7, in 2008 a voluntourism-cum-ecological-research organisation known as Frontier applied successfully to the Darwin Initiative for financial support for a project based on restoring ecological connectivity across the Kilombero Valley, under the rubric of restoring the highly threatened Ruipa Corridor. The project was entitled ‘Conserving the Ruipa Corridor: facilitating cohesive management between diverse stakeholders’. This was the fifth time Frontier had received project funding from the Darwin Initiative (The Society for Environmental Exploration, 2008). Frontier had already collected ecological data on wildlife presence in the area, having conducted transect research on large mammal presence and movement since 2006 (Jones et al., 2007; The Society for Environmental Exploration, 2008).

According to their initial application to the Darwin Initiative, and reports submitted thereafter (Bamford, 2011; Lloyd, 2012; The Society for Environmental Exploration, 2008), Frontier's approach to contributing to the protection or restoration of the Ruipa corridor would be through data-driven but participatory land use planning. In their second annual report to the Darwin Initiative they specify one of their outcomes as "Comprehensive Management Plans designed by Frontier-Tanzania for the Ruipa Wildlife Corridor with the participation and agreement of each of the key stakeholders, based on updated knowledge of Corridor biodiversity and threats" (Bamford, 2010, p. 7). As such, Frontier's approach would broadly correspond to the option of community-based corridor management, as outlined by Jones et al. as a prospective management approach for the Ruipa Corridor (Jones et al., 2007). In this second annual report, Frontier acknowledge that their role is to facilitate rather than to design land use plans for villages: "The process of developing a land-management plan is slightly different from that anticipated in the original proposal – the process does not involve Frontier actually writing the plan, which is done by the District Council, but Frontier can facilitate the development of the plan and make recommendations to the villages" (Bamford, 2010, p. 10). They state that "The plan itself must be discussed and fully agreed upon in village meetings, and it will then be implemented by the district council" (ibid, p. 7).

Frontier's work on the corridor project began in July 2009 (Steer, 2009). Their base camp was established in "pristine miombo woodland" belonging to Igota village – situated between the Ifakara-Mahenge Road and the western border of the Selous Game Reserve – and "a prime location to study the interactions between humans and wildlife in the area" (Bamford, 2010, p. 2). The collection of socio-economic data to inform the development of land management plans began in November 2009. This included surveys of a total of 275 households across 8 villages in Ulanga District⁵⁰, selected based on "their inclusion in the Ruipa corridor and overlap with biodiversity and elephant movement surveys" (Bamford et al., 2010, p. 7), as well as key informant interviews with village and district leaders. The aim was to determine local perspectives and experiences of human-wildlife conflict (Bamford, 2010).

In 2009 and 2010, Frontier conducted and coordinated social and community work – introductory meetings to village leadership, sensitisation meetings to the village assembly,

⁵⁰ Mavimba, Igumbiro, Lupiro, Igota, Kichangani, Ikungua, Idunda and Nakafulu

participatory mapping exercises led by members of Ulanga District Council – aiming to ensure that the corridor was understood and accepted by the residents of the villages concerned. According to their own documentation, sometimes Frontier would lead meetings, sometimes they would be invited to provide expert information, or sometimes to facilitate meetings between others (Bamford, 2011). Frontier also conducted ground surveys to map the movement of large mammals in the claimed Ruipa Corridor area. This involved monitoring 24 strip transects, 2 x 500m long, every three months from January 2008 until December 2010⁵¹, as detailed in Frontier’s report *The status of the Ruipa Corridor between the Selous Game Reserve and Udzungwa Mountains* (Bamford et al., 2010). This report was distributed to a range of local and national stakeholders and “other interested parties” (Bamford, 2011, p. 4).

In the absence of specific regulations on wildlife corridors (which would not be introduced until March 2018), they used the mechanism of the village land use plan (VLUP) to ‘create’ the corridor, so to speak, by including designated corridor areas in both villages. The area designated as corridor was based on the scientific data collected by Frontier volunteers. The Kichangani-Ikungua corridor has been ‘official’ since 2011, in that this was the year that the VLUPs for Kichangani and Ikungua were “signed by the district council and the village”, making them “legally binding” despite the apparent backlog in processing VLUPs at the Tanzanian Ministry of Lands, Housing and Human Settlements, as outlined in Frontier’s half-year report to the Darwin Initiative (Lloyd, 2011). A 2012 update report from Frontier described how their research suggested that seasonal movement was now concentrated in the villages of Kichangani, Ikungua, Igota and Idunda, and that “[as] these corridors are currently obstructed by a small number of farms in some places, the villagers themselves have volunteered to abandon farms in potential forest areas” (Brown et al., 2012a, p. 12).

In their documentation, Frontier repeatedly and consistently engage with the language of participation, presenting a clear intention to develop village land use plans fairly and with the full knowledge and consent of villages. They report no difficulty in either locating the few households or farms located within the area they identify as the most likely pathway of large mammal movement between KVTC’s Nakafulu block and the forest abutting the Selous Game

⁵¹ Note that the start date of January 2008 predates the official start of Frontier’s Ruipa Corridor project as Frontier had already been conducting other volunteer-supported conservation in the Valley for some years.

Reserve, nor any difficulty in getting villagers to abandon farms in the few cases where that was necessary. The main difficulties they report are around confusing land use plans, which they commit to resolve before developing any new land use plans, and around their somewhat difficult professional relationship with a Belgian Technical Corporation (BTC) project, who at the time were working on developing land use plans for some villages in Kilombero District⁵².

The Darwin Initiative Frontier project officially ended on 30th June 2012 (Darwin Initiative, n.d.). By this time, according to Frontier reports, village land use plans had been developed for the four villages they had decided to focus their efforts on – Igota, Idunda, Kichangani and Ikungua. The penultimate report Frontier made to the Darwin Initiative states that, although the Tanzanian Ministry of Land is dealing with a backlog and as such there would be a delay to the final ratification of the VLUPs, “the fact that they are signed by the district council and the village makes them legally binding” (Lloyd, 2011, n.p.). Frontier’s final report confirms that there were corridors in two of those VLUPs, “[connecting] the Selous to the Kilombero Ramsar site⁵³, allowing large mammals to pass between those areas”, but the reports do not name which specific villages the corridors are in.

8.4 Two sides to every story

Primary data indicates that the two villages for which corridors were incorporated into their VLUPs were Kichangani and Ikungua (IN09, IN25). At Kichangani, there is a map painted on a signboard outside the village office, showing a land use plan in place from 2011-2021 which includes a designated wildlife corridor area (Figure 8.3); however, there is no such corresponding map outside Ikungua’s village office. According to IN67, leader of a local conservation NGO who was formerly employed by Frontier, the corridor should extend 1.25km into Kichangani and Ikungua village from their shared border – making the combined Kichangani-Ikungua corridor area 2.5km wide. This does correspond with some of the cartographic and interview data unearthed as part of this PhD project – as outlined in the sections that follow – but this is not specified in any Frontier documentation. Already, we get

⁵² This project appears to be the first incarnation of the KILORWEMP project, which for reasons that are not entirely clear was suspended before restarting again around the year 2010.

⁵³ The boundaries of the Kilombero Valley Ramsar site are often conflated with the boundaries of the Kilombero GCA, though they are in fact two separate entities.

a sense of confusion and contradiction pervading the outcome(s) of Frontier’s corridor project.

The following sections present some alternative narratives to the one detailed in section 8.3 above, which begin to explain the apparent confusion.

8.4.1 Kichangani: corridor ambiguity and reluctant performance

“They have a genuine point. They are saying, just the other village which they border [...] they have already cultivated all of the corridor [...] On the other side of the village again there is the KVTC. Now, what is the essence of us to have a corridor?” – academic and KILORWEMP consultant (IN11)

During a group interview with Kichangani village council (GI04)⁵⁴, interviewees stated that they, as their village’s leadership, were satisfied with the process coordinated by Frontier which led to the inclusion of corridor land in their VLUP. During that interview, however, those same interviewees also expressed suspicions that many villagers were not made aware of the actual extent of the corridor during that process (i.e. where the corridor land would actually lie in relation to well-known village features), nor did they necessarily understand that agreeing to the inclusion of corridor land would mean that they would no longer be permitted to farm in that area. It would appear, therefore, that village council members were merely satisfied that each administrative step had been followed, even though Frontier’s ‘sensitisation’ process ultimately failed to achieve full and prior informed consent. This suggests a similar dynamic to Cooke and Kothari’s observation of “participatory processes undertaken ritualistically” in development projects (2004, p. 1), wherein participation becomes more of a tokenistic box-ticking exercise than meaningfully participatory or inclusive.

⁵⁴ I had previously conducted a joint interview with the village executive officer and village chairman of Kichangani village (IN02), but they reported that neither of them had been in position when Frontier developed their VLUP for Kichangani, and did not comment on the process.



Figure 8.3 – Map of Village Land Use Plan for Kichangani Village, painted on signboard outside the village office. Note wildlife management area (WMA – eneo la wanyama pori) and corridor (mapito ya wanyama pori) are designated as separate categories in the key; however, the two areas are almost indistinguishable on the map. A bold black line has been added around the border of the corridor area for clarity. Photo by AG, 26th January 2018.

Data from key informant interviews and household surveys appear to confirm widespread uncertainty about the extent of the corridor among villagers, both when they originally ‘agreed’ to the corridor, and once the corridor was formally included in their VLUP (GI04, IN03, IN67). In my household survey, 63% of respondents in Kichangani village reported never having seen a map of the village’s VLUP. The most easily accessible map is one painted on the signboard outside the village office, shown in Figure 8.3. On this map, the key indicates ‘mapito ya wanyama pori’ (translated into English as wildlife corridor), separately from ‘eneo la wanyama pori’ (Wildlife Management Area, direct translation area of wildlife) – but on the map, the colour and shading of these two land designations make them practically indistinguishable.

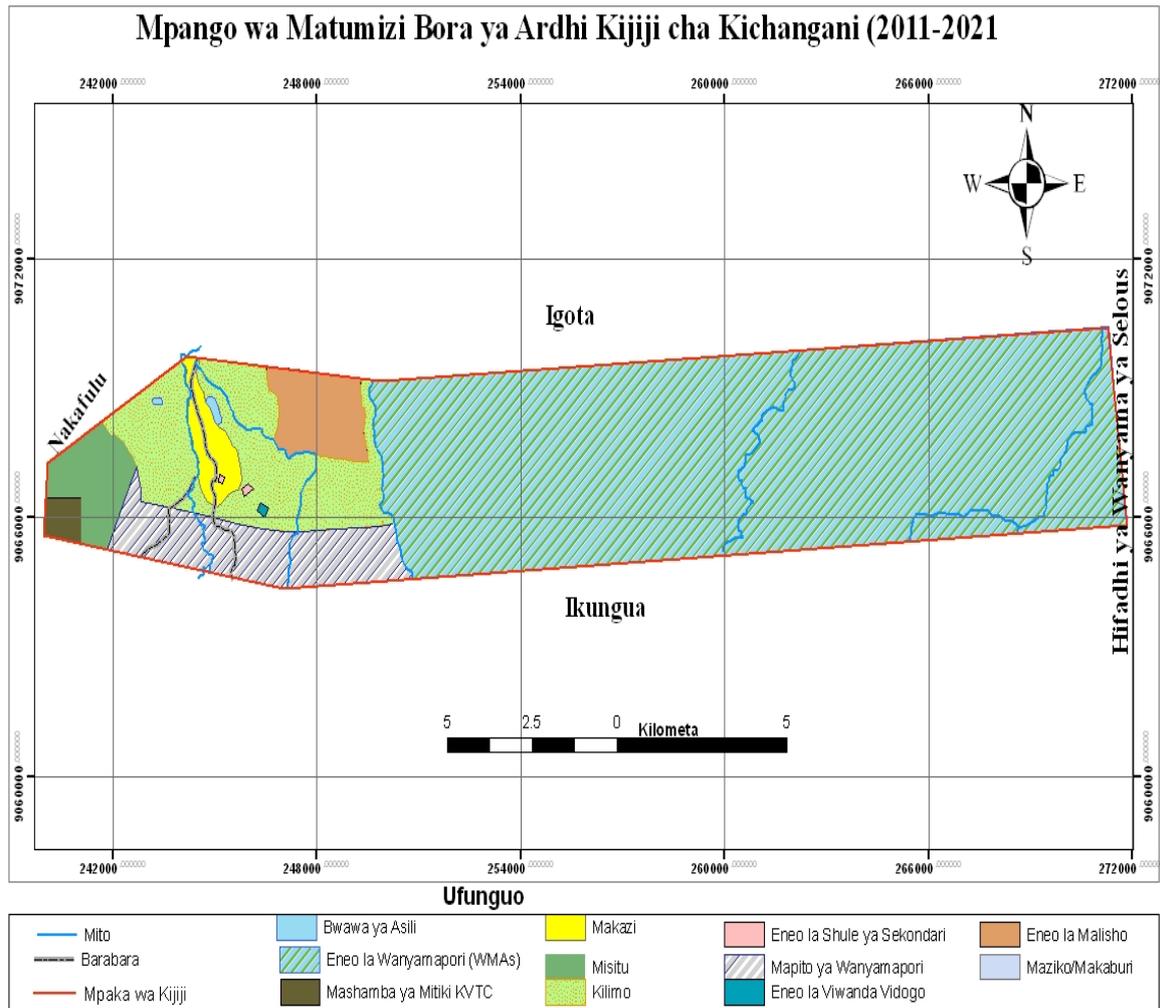


Figure 8.4 - 'Village Land Use Plan Kichangani (2011-2021)'. This map clearly shows land designated as 'Mapito ya Wanyamapori' – 'Wildlife Corridor'. It mirrors the VLUP map displayed outside Kichangani village office, shown in Figure 8.3, although the corridor and WMA areas are more clearly distinguishable. This is the most current VLUP map for Kichangani according to KILORWEMP (unpublished report)

According to respondent IN60, representative for Ulanga District Council to the KILORWEMP project, this ambiguity arises from an intention to signify that the corridor should effectively be treated as a WMA: "If you get the land use plan prepared by Frontier in 2012, it is a wildlife corridor, and it is a WMA"; "If you see the, if you go to the scale [key], the colour of the WMA is the same as the mapito [corridor]. The names are different, but the colour is the same. To indicate that the use is the same". It is notable that Kichangani's designated WMA area does not yet have an established Community-Based Organization (CBO) – the body of locally-elected representatives tasked with managing a WMA. IN60 stated "If you could have managed to complete a CBO, it means the CBO should have been managing the wildlife corridor as part of a WMA. But we just put the land use plan, and indicate the place for the

WMA, but we have never managed to formulate a CBO". As such, the WMA/corridor exists in name only: there is no management committee, meaning no investors, and therefore no way for the people of Kichangani to benefit financially from its existence. Despite this, according to IN60, the designated WMA area should be treated as such from the moment it is included in a VLUP: "Once you approve the land use plan in the village assembly, it has to be respected [...] As soon as it's in the land use plan, it's a WMA".

Cartographically, the corridor in Kichangani is both undeniable and ambiguous, designated as separate, but aligned with a WMA space that is unable to generate any benefits for the people of the village. Evidently, even the minority in Kichangani who *had* seen a VLUP map – around 37% according to the household survey – were presented with a map which clearly designates a separate corridor area, but leaves unclear what this means in practice, or how this differs, if at all, from a WMA. This episode also begs the question why it would be necessary for the corridor to be named as such at all, if the apparent intention was for it to effectively be treated as and eventually become a WMA. There is clearly an amount of slippage – discursively and cartographically – between the two categories of corridor and WMA. However, with the idea of restoring ecological connectivity within the Ruipa corridor written into the project from the grant application stage, as discussed above, it is highly unlikely that Frontier would have produced a VLUP map which did *not* include the word 'corridor'. In other words, it was important to Frontier that the VLUP of Kichangani visibly and undeniably included *named* corridor land. The corridor is now enshrined in a VLUP map and displayed outside the village office: a discursive and visual representation which serves to both represent and to *produce* the space of the wildlife corridor in Kichangani village.

Kichangani village council members also expressed dissatisfaction with the events that followed the formal inclusion of corridor land in Kichangani's VLUP. Specifically, they reported that there were no signboards provided to show the extent of the corridor *in situ*. A report from Frontier in 2012 – the last made to the Darwin Initiative regarding the Kichangani-Ikungua Corridor project before Frontier left the area altogether – suggests that village teams had been formed to set down sign boards, but that villagers were "understandably reluctant" to sacrifice time to this activity during harvest (Brown et al., 2012b). The same document also

reports that, of the few signboards that had been placed at the time of writing, at least one had been stolen, perhaps indicating early resistance to the corridor. There was no *in situ* demarcation of corridor boundaries, therefore, until the year 2017, when village leaders marked out corridor boundaries as part of their leadership duties (IN03, sub-village chairman, Kichangani⁵⁵). Those indications that were added (5 years) after the fact – arrows sporadically spray-painted on trees, as shown in Figure 8.5 – were *ad hoc* and inadequate, and a compromise due to lack of resources (IN03).



Figure 8.5 - Photograph of *in situ* marking of the border of the Kichangani-Ikungua corridor Kichangani side. The word at the bottom is 'MAPITIO' – one of the words used for 'corridor' in Swahili. Photo by AG.

⁵⁵ Kichangani is divided into three sub-village areas, each with its own sub-village chairman who sits on the village council

IN03 expressed complicated feelings towards the corridor space in his village corridor. During his interview, he reported that the Kichangani-Ikungua corridor – which he in fact referred to as ‘Corridor ya Ruipa’ during the interview – had brought nothing but conflict to his village. He was confident that the majority of Kichangani residents do not like the corridor and that the extent of the corridor’s boundaries had never been made clear on the ground, and claimed that even in recent meetings villagers had been raising objections to the corridor. He then pointed out the inconsistency of insisting that Kichangani maintains a corridor space for wildlife, when a) the neighbouring village of Ikungua has been ignoring their ‘half’ of the corridor (to be discussed), and b) there are huge swathes of land being used for KVTC’s industrial-scale teak planting, just bordering their village. IN03’s comments found sympathy with IN11⁵⁶, an academic a consultant for KILORWEMP, who asked, given Kichangani’s lack of influence over what was happening in their immediate surroundings, “Now what is the essence of us to have a corridor?”

During his interview, however, the Kichangani sub-village chairman also described how he, along with other members of village leadership, conducted boundary-marking activities by spray-painting arrows on trees like the one shown in Figure 8.5, and expressed a wish that Frontier had arranged for them to receive signboards from the district council before they wrapped up their operations in the Valley and left in 2012. This person resists the village corridor on a personal level, even as he expends effort performing it at a professional level, and lamenting the confusion left in the wake of the Frontier project. This suggests that, even if he disputes the logic of the village corridor in light of the immediate surroundings of his village, he does accept the Kichangani-Ikungua corridor as ‘fact’ at some level. This points to how this incarnation of a corridor is able to enrol key actors into its spatial production, exerting a kind of non-human agency by way of its connections and alignments, however contested, with village planning, community-based conservation mechanisms, and the idea of the Ruipa Corridor.

⁵⁶ In a separate interview

8.4.2 Ikungua: corridor resistance

“No, it’s not only Kichangani. Because the, the corridor is between Kichangani and Ikungua. There is the animal corridor there. From Selous [...] up to Kilombero Valley” IN09

Ikungua’s village chairman (IN07) confirmed that the corridor idea was introduced to his village through Frontier, who arranged meetings with Ikungua village council (the leadership) and village assembly (technically this includes all resident adults, though as will be discussed in section 9.2.2 of the following chapter, the entire village assembly may not be in attendance) to introduce the idea of the corridor to the village. As IN07 explained to me, Frontier wanted Ikungua to include a corridor in their VLUP, but the villagers were reluctant to accept, feeling that, as a small village, they did not have the land to spare. At an unspecified follow-up meeting⁵⁷, IN07 reports, it was decided that they would in fact *not* have a corridor in their VLUP. Frontier were informed of the decision accordingly – something which the village has reported to any subsequent visitors asking them about the village corridor, such as myself, local environmental organisations, or research teams from KILORWEMP. The contestation over whether Ikungua ‘has’ a corridor or not was clearly a sensitive subject for the village chairman. It was evident from both the content and tone of the interview that he felt stung by previous encounters with outsiders asking about corridors; he stated several times that he did not want me to report that he, or any other member of the village council, had agreed to have a corridor in Ikungua, and reported that it was ‘people like me’ who had attempted to ‘force’⁵⁸ his village to agree to a corridor in the first place.

An interview with Ikungua’s village executive officer⁵⁹ (VEO, IN04) provided a slightly different narrative to that outlined by Ikungua village chairman IN07. As opposed to stating that Ikungua never agreed to have a corridor in the first place, as IN07 reported, she told me that Ikungua follows its VLUP in all respects with the *exception* of the corridor – the reason being

⁵⁷ It was not clear whether this follow-up meeting was another general meeting which village assembly members would have been able to attend, or was a meeting with village leadership only.

⁵⁸ As translated by my research assistant

⁵⁹ As a reminder, the VEO is the administrative component of governance at the village level, appointed by the central government; see section 3.3.1

that such an area would take up too much of this relatively small village's land. This would imply that Ikungua does indeed have designated corridor land in its VLUP.

Data from workshops with villagers from Ikungua appears to confirm the VEO's account. The two separate workshops in Ikungua (WS03 and WS04) both recounted similar stories: that Ikungua villagers were initially convinced by Frontier's proposal, and that, having no objections to conservation or wild animals *per se*, they agreed to have a corridor in the area. However, the villagers did not realise *quite* how much space the corridor would take up within the boundaries of their village. Two possible reasons for this misunderstanding were offered: either a belief that Ikungua village was significantly bigger than it actually is, due to ongoing boundary disputes with both Kichangani village at the north and Idunda at the south; or a belief that the proposed corridor would lie primarily within Kichangani, as the bigger of the two villages, and that only a small proportion would fall in Ikungua. Whichever way, the end result is the same: a village apparently populated with people who feel aggrieved at how much land they were expected to sacrifice for a wildlife corridor, and who are now – entirely reasonably in their view – choosing to simply ignore it.

Ikungua's village chairman informed me that there were no maps, signed minutes, or other official documentation from Frontier's 'sensitisation' activities in Ikungua⁶⁰. Empirical evidence from Tanzania demonstrates that ostensibly community-led village planning processes can be co-opted by influential individuals or organisations, manipulating FPIC processes and undermining the democratic foundations through which consent and village participation should, in theory, be obtained (Bluwstein et al., 2016; Igoe and Croucher, 2007). As such, the lack of documentation of Frontier's interventions in village planning in Ikungua – whether village assemblies took place, what was discussed, how was the atmosphere during meetings and whether many people were in attendance⁶¹ – is something of a gap. Nonetheless, regardless of how Frontier's process was conducted, the data collected above from village leadership and villagers would suggest that, from the (broadly defined) village

⁶⁰ Translation left it unclear whether this information was not available in general, or not available to me specifically

⁶¹ Information on attendance at village meetings, awareness of village maps, use of village space and perceptions of wildlife conservation activities in Ikungua more generally (i.e. not in reference to Frontier specifically) is presented in the following chapter.

perspective, collectively Ikungua village leadership and residents do not accept the inclusion of corridor space in their village as legitimate.

IN25, Ulanga District Council's (UDC) wildlife officer, meanwhile, in contrast to the above reports from village leadership and villagers, was insistent that Frontier was definitely successful in its attempt to include a corridor in Ikungua's VLUP. IN09, a town and rural planner employed by Tanzania's Ministry of Land working with LTSP (the Land Tenure Support Programme, a UK-supported village land tenure and planning project – see Table 3.3 on p72) was similarly adamant: when I asked him if Kichangani was the only village with a corridor in its VLUP, he responded “No, it's not only Kichangani. Because the, the corridor is between Kichangani and Ikungua. There is the animal corridor there. From Selous [...] up to Kilombero Valley” (IN09). To add further confusion, IN60 claimed that “In Ikungua and Kichangani they have the wildlife corridor. Since 2012. But the recent land tenure support [LTSP project] in Ikungua, they refused to include the wildlife corridor in that land use plan. In the new one.” This means that there is even confusion *within* the LTSP project: IN09, who works for LTSP, is insistent that Ikungua has a corridor, while IN60 claims that LTSP has “refused” to include a corridor in Ikungua's new VLUP.

The only VLUP map for Ikungua that I was able to procure⁶² does not show any corridor land (Figure 8.6). However, this map is dated from 2017, meaning that it would have replaced any VLUP developed by Frontier, whose maps would have been produced in 2012 like the Kichangani map shown in Figure 8.4. On the ground, there were no traces of the existence of a corridor in Ikungua – not even a meagre arrow sprayed on a tree like the one in Kichangani depicted in Figure 8.5. Indeed, a former employee of Frontier⁶³ regularly expressed his ire and exasperation that within Ikungua's (purported) corridor area there was a signboard indicating the site where a dispensary would eventually be built (refer to map, Figure 8.6, blue lined area at the village's northern border, named in the key as 'eneo la zahanati'). For IN67, by the time Frontier wrapped up its activities in the Valley, Ikungua had a legal obligation to maintain that area as a corridor, and as such its declared intention to build a dispensary in this area was a clear breach. If the corridor is defined by a lack of anthropogenic activity within it – as

⁶² Shared with me by a consultant working with KILORWEMP

⁶³ IN67 – former Frontier employee, director of local conservation organisation and my research assistant

it is for many respondents discussed in this thesis so far – then the erection of this dispensary sign amounts to an act of resistance, even a firm rejection of the corridor.

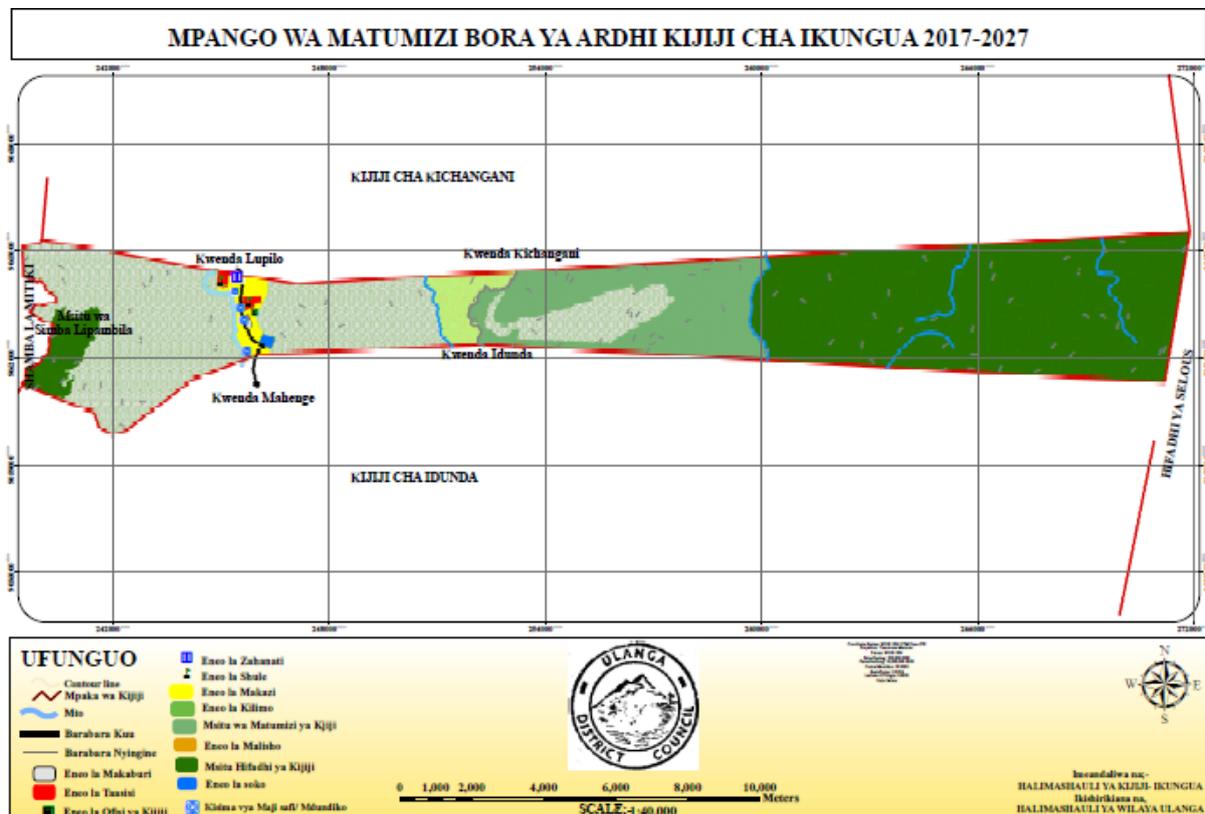


Figure 8.6 - 'Village Land Use Plan Ikungua 2017-2027'. There is no designated wildlife corridor land in this most recent VLUP map for Ikungua

8.5 Professional performances of the Kichangani-Ikungua Corridor

Having established the 'official' version of events in section 8.3, and begun to consider alternative versions of the Kichangani-Ikungua corridor narrative in section 8.4, this section turns to how the corridor has entered into village and district-level planning complexes, and how it is performed by professional actors involved in land use planning. This sheds some light on the discrepancy between how the corridor manifests on each side of the Kichangani-Ikungua border.

8.5.1 Schrodinger's Corridor

As briefly mentioned above, The Land Tenure Support Programme (LTSP) is a project coordinated via Tanzania's Ministry of Land, and funded by the UK via DFID, Sweden via SIDA and Denmark via DANIDA. Its stated aim is to 'ground truth' and formalise land use at the

village level, and thereby improve security of land tenure in rural Tanzania, in two main ways: by clarifying village borders (including borders between different areas within villages e.g. grazing, farming, settlement); and by issuing households with Certificates of Customary Rights of Occupancy (CCROs – see 3.3.2). LTSP was piloting its activities in the districts of Kilombero, Ulunga and Malinyi, and active in those districts in 2017 and 2018. The mechanism through which LTSP activities were conducted was the Participatory Land Use Management team, or PLUM team. The PLUM team conducted ground-truthing exercises in every village across Kilombero, Ulunga and Malinyi districts, in order that VLUPs might be developed, and CCROs subsequently issued. The PLUM team includes legal officers from the district where the work is taking place, and is coordinated by a representative from the Ministry of Land who oversees activities. The PLUM team also includes one representative from relevant departments within the district council – in this case land, wildlife, livestock, community development, forestry and agriculture. The intention is to ensure that all relevant areas of expertise are represented during the PLUM team’s ground surveying activities.

In practice, though, the PLUM team was always divided into two, so that surveying exercises could be conducted in two villages concurrently. This meant that for half the villages, there would be no one present in the PLUM team whose primary concern was the management of wildlife. In the words of IN25, UDC’s District Wildlife Officer, “If there is something concerning wildlife in village A, and I’m not there, no-one can defend” (IN25).

IN25 explained that one day, sometime in early 2018, she was working in one village with one half of the PLUM team, while the other half were working in Ikungua. As a result, she claims, there was no one there representing wildlife to ‘defend’ the corridor on the Ikungua side. For IN25, the role of the PLUM team should have been to simply adopt, unchanged, the pre-existing land use plan prepared and (purportedly) finalised by Frontier in 2011. As far as she was concerned, then, this would include an area of designated wildlife corridor. This is also how the role of the PLUM team was understood by IN01 and IN11, both of whom had experience working on KILORWEMP projects. This perspective was also shared by IN60, who described Ikungua’s ‘refusal’ to retain wildlife corridor in their new VLUP within the context of a highly contingent land use planning process: “[The VLUP] may not be influenced by technical staff but by the funder, the donor. Like if you look at a project which did the land

use plan [...], if the project is Ministry of Natural Resources which is interested to protect the corridor, the wildlife corridor should have been super. Because the, the main output of the project is to get what? A wildlife corridor, or a WMA. Now, the ministry which is accorded the [Ikungua] land use plan for 2018 is the Ministry of Land, which is [...] the main product is the CCROs. So the big thing in the mind of the community, mind of the people, of everyone, is to give these out.” The data from these respondents appears to support Walwa’s (2017) assertion that land use planning at the village level, though ostensibly participatory, are frequently co-opted by and shaped by the interests of powerful actors – in this case having real consequences for both land tenure and conservation.

8.5.2 “Some sort of imaginary corridor”: the legal ambiguity of the Kichangani-Ikungua corridor

Various respondents reported feeling that their work had been made more difficult by the work of LTSP which, they perceived, had been done in isolation from and without consideration for their own work – within the district council and/or related to KILORWEMP – fuelling confusion. IN10, an academic specialising in conservation social science and a consultant on the KILORWEMP project, reported that LTSP had been issuing CCROs in the Ikungua corridor area, saying “They admitted that it was a mistake. But then they were asking why did they do that, and they were- it was like they didn’t want to say, because they were afraid of being implicated. But er, I could feel from what they were saying that, er, they did a mistake”. IN01, who consulted on the KILORWEMP project, said of LTSP “they’re not clueless, they’re careless”, while IN60, the UDC representative to KILORWEMP, stated simply “CCROs are coming wrongly”.

This confusion can perhaps be explained by the ambiguous legal status of the Kichangani-Ikungua corridor. IN11, an environmental economics expert and consultant for KILORWEMP, pointed out that, in 2011 when the Kichangani-Ikungua corridor was introduced into the respective villages’ VLUPs, there was no legal recognition of corridors in Tanzania⁶⁴. He emphasised that this made any restrictions placed on people as a result of the corridor potentially questionable – “By the way, even in the government, [...] even in the policy, and

⁶⁴ As discussed in chapter 3, corridors were first mentioned in the Wildlife Act of 2009, but there was no supporting legislation until the corridor regulations of March 2018.

the law, has never put a mark that this is, from here up to here is a corridor. There is- there is no something like that. So in other words we are speaking that we have some sort of an imaginary corridor”, “I mean the conservation law, does not say anything about, er, I mean- it doesn't recognise a corridor to be a protected area. You see? What does that mean. That means that this area can be used by anything”. IN10 echoed this sentiment: “Although the corridors are being stated, they're not legally protected”. However, she continued: “[Corridors] are naturally occurring [...] but they are not protected legally [...] And it was agreed before that this land, because it is naturally a corridor, and because the interference is not too much compared to other places, then let the area be left for the corridor establishment. So the LTSP violated that when they gave the CCROs to the villages [in the corridor]. So legally they are right, but, er, it is not legitimate”. IN10's feelings were muddled as she attempted to reconcile the legally ambiguous status of the Kichangani-Ikungua corridor with her belief in the corridor as 'natural' and its correspondingly inalienable right to exist.

At the same time, respondent IN60 – the representative of Ulanga's District Executive Director to the KILORWEMP project – reported to me that he was happy that Frontier brought the corridor space to Kichangani and Ikungua villages, even if there was confusion surrounding it: “To me it is working because, it is really making people to suffer. People are suffering. Especially the professionals. If Frontier never did that job, even myself I didn't hear what is wildlife corridor. So what Frontier did, it has make very complicated to change that land according to other uses. They are changing, but whenever they change it is bringing {unintelligible}”. For this respondent, the sheer inconvenience of the corridor is generating an awareness that he interprets as a success.

For IN60, this even extends to after a corridor space has been lost: “I think Frontier should formulate a new project on wildlife corridor. Just trying to find whatever it is, trying change the status, even if the status is gone saying 'there was a wildlife corridor here some years, but now it is a town', it is a very good thing. Because it opens people's minds to know that there is the wildlife corridor here which has been killed, but there is another one somewhere which we should just take care of that, if we cannot rescue this one [...] It's a natural feature. So we need to give it its own status. Even if it's already killed, no longer existing. We should really recognise that it is a corridor”. The key, for IN60, is awareness – corresponding with the

“territorialisation of mind” proposed by Bluwstein and Lund (2016). For this respondent, the area will continue to ‘be’ a corridor in some way, even if it is legal limbo, or if all the material traces of the corridor are lost or “killed” – truly resonating with the conceptualisation of Ruipa as a ‘ghost’ corridor as outlined in chapter 6.

8.6 Discussion

This chapter has shown how, far from being the outcome of a set of discrete step-wise events, transparent and participatory land use planning processes, intentional decision making, and policy implementation, the current manifestation of the Kichangani-Ikungua corridor can be understood as an accumulation of professional practices, personal proclivities, planning tools, administrative boundaries and, at times, sheer mundanity. These diverse elements were brought into articulation with one another by the ideas and activities of Frontier, KILORWEMP, and LTSP.

This helps us understand how the leadership of both Kichangani and Ikungua villages have evidently experienced the corridor in markedly different ways since Frontier left the area in 2012. Though both express grievances with the corridor, in Ikungua, it seems the leadership were effectively able to ignore it, with no real consequences, until there was an opportunity to replace their VLUP. In Kichangani, meanwhile, the sub-village chairman I interviewed seemed to perceive ‘making’ the corridor as part of his leadership duties, regardless of his personal feelings. It is evident that village leaders are both enabled and constrained by their connections to other people and things within the village corridor assemblage. In this case, the ‘half’ of the PLUM team assigned to each village on a given day helped to create a situation in which Kichangani is left with a corridor that has no (legal or cartographic) corresponding half in its neighbouring village. In Kichangani and Ikungua, the activities of LTSP, intended to clarify and fortify borders, acted as a kind of agitation destabilising the (already somewhat ambiguous) work of Frontier by opening up villages anew as spaces of negotiation in which designated corridors spaces were exposed and made vulnerable. At the same time, there were key individuals of influence – in particular IN60, who bridges UDC and the KILORWEMP project, but also IN25, UDC’s wildlife officer, and IN09, the planner working for LTSP – who expended effort performing and protecting the 1.25km-wide corridor ‘half’ apparently remaining in Kichangani.

This chapter has also demonstrated the *potential* power of the state planning mechanism of the VLUP, when aligned – however ambiguously – to simplified narratives of ‘natural’ corridors, and wielded by those in a position of influence. Evidently, VLUPs can act as a kind of legal-administrative filter, through which some elements are allowed to pass and others not: they can either be held up as inviolable and used to fortify claims about spaces, or else easily overturned or merely overlooked – depending on the predilections and partialities of those who are included in the process. This suggests that, in these villages, the VLUP is powerful to the extent that those with influence, power or privileged knowledge allow it to be.

VLUPs, mapping technologies, planning legislation, the rhetoric of participation and community conservation, and notions about ‘natural’ corridors – together they create the spaces, conceptual and literal, in which the intentions of individual actors are channelled, diluted, fortified, and otherwise directed and transformed. This has resulted in a complex village corridor assemblage, which manifests materially as a legally-ambiguous but nonetheless intransigent pseudo protected area, which straddles the boundaries of two villages, has (almost) no in situ demarcation, and which in various ways demands the time, attention and efforts of those who must live with, or indeed ‘within’ it. This is explored further in the following and final empirical chapter of this thesis, which examines villager perspectives on, and engagement with, the Kichangani-Ikungua corridor space.

9 The Kichangani-Ikungua Corridor: The view from within

9.1 Introduction

Chapter 8 explored the official and unofficial versions of how the Kichangani-Ikungua Corridor came into existence. It showed how, despite ostensibly following identical administrative and participatory planning processes, the corridor came to manifest differently on each side of the border due to a concatenation of defined project objectives, personal proclivities of influential individuals, state-sanctioned planning mechanisms, and mundane professional practices. In this chapter, I turn to the experiences of those who live with or alongside the Kichangani-Ikungua corridor day-to-day. In section 9.2, I present the views on the village corridor from village residents, and discuss how people engage(d) with the corridor space, both in general and in terms of the village land use planning process. Section 9.3 details the case of an individual who finds himself at the centre of contestation surrounding the status of the corridor on the Kichangani side. This is followed in section 9.4 with the account of single key informant – a former employee of Frontier – who casts the story of the Kichangani-Ikungua corridor in an entirely new light.

For this chapter, I draw on household survey data, semi-structured interviews with planning and conservation professionals working in the district, and key informant interviews.

9.2 Living with the Corridor: Exploring villagers' perspectives

“A very large area has been taken by that corridor, and people had already farmed in it. But the government is the government, I do not agree myself, but what can we do?” household survey respondent, Kichangani

In chapter 8, I discussed how the Kichangani-Ikungua Corridor was constructed in both written and mapped materials, generated under professional conditions of a donor-sponsored project, and therefore needing to convey a sense of success and completeness. I also presented the perspectives of village leadership from both villages, which together challenged the narrative account constructed by Frontier's maps and reports, by revealing that while stepwise procedure may have been followed, Frontier left the villages with a corridor space that was of ambiguous legal status and unclear spatial extent. In this section, I

explore the perspectives of the villagers of Kichangani and Ikungua, using data from household surveys, workshops and observation to detail the lived experience of and attitude towards the Kichangani-Ikungua corridor held by those who live with and alongside it day to day.

9.2.1 Attitudes

Attitudes towards the corridor were captured both using household survey data – using a combination of closed and open questions – and workshops in Kichangani and Ikungua villages.

Do you want your village to have wildlife corridor land in the next village land-use plan? (Swahili: Je, wewe ungependa kijiji chako kiwe na mapito ya wanyamapori katika mpango wa matumizi bora ya ardhi yatakayofuata?)					
	Yes	No	Don't know	Don't care	Missing
Kichangani (n=136)	44%	40%	11%	4%	1%
Ikungua (n=64)	11%	58%	28%	3%	n/a

Table 9.1 – Results of closed household survey question: Do you want your village to have wildlife corridor land in the next village land-use plan?

The final question of my household survey was in two parts: a closed question asking respondents whether they wanted a corridor to be included in their village's next VLUP or not, and an open question asking them to explain their answer. The closed question was formulated to ask about the inclusion of corridor land in the *next* VLUP, allowing me to explore feelings towards village corridors without opening up possible confusion or irritation for respondents in Ikungua, where the current status of the corridor is already highly contested. Results are summarised in Table 9.1. In Kichangani, there is no clear majority on the question of whether or not the village should have a corridor in its next VLUP: evidently residents of Kichangani are divided in their feelings towards the corridor. Kichangani villagers are also more likely to have a strong opinion on the corridor than their counterparts in Ikungua, 28% of whom responded that they did not know whether they wanted a corridor in their village's next VLUP. This is perhaps a reflection of the corridor's more contested status on the Ikungua 'side'. Of those respondents in Ikungua who *did* formulate a strong opinion about the corridor, many more objected to the presence of a corridor in the next VLUP than supported it.

Data from the open question in the household survey asking respondents to explain the answers given in Table 9.1 suggest that villagers who support the corridor often do so primarily for ethical or affective reasons, centring around animals' right to exist, or around simply liking animals. Respondents made statements such as 'Because animals are like humans, they have their own rights', 'I only see that it is the right thing to do', 'If they don't include a corridor, animals will totally disappear due to killing as they come into contact with humans', 'Because it will allow our children to see animals in the future'⁶⁵ (all responses from Kichangani). These perspectives emphasise the *intrinsic* value of protecting wildlife. No respondents in the survey cited personal or direct benefit from the presence of wild animals as a reason for wanting a corridor in their village's next VLUP, though five respondents mentioned the potential to attract tourists (four in Kichangani, one in Ikungua). The indirect benefit of reducing human-wildlife conflict was specified as a reason for wanting to keep a corridor by 11 of the 200 respondents – all of whom were from Kichangani. However, some respondents provided ambiguous answers, for which reduction of human-wildlife conflict *might* motivate their support for a corridor in their village: 'I agree [to the corridor] because if not, then where will animals pass'; 'It is the nature of animals to pass the same area they have passed in previous years' (both examples from Kichangani).

Those who opposed the corridor often reported that there is not enough space in the village to sacrifice for wildlife. Indeed, in Ikungua the lack of space was the main reason provided for opposing a corridor (for 22 of 37 respondents). In Kichangani, three respondents mentioned the impending eviction of farmers from Kikwachu – an important farming area located outside of Kichangani's village boundaries – as their reason for opposing the village corridor (Kikwachu is discussed again below). Others claimed that animals are dangerous, or that it is not possible for people and wild animals to share space harmoniously in this way: 'Wildlife will destroy crops' (Ikungua), 'Even if they are given a corridor they will still get out and destroy crops, so it is better for them to stay far away from us' (Kichangani), 'Animals will kill us if they pass near the village' (Kichangani). Overall, 16 respondents (four in Ikungua, 12 in Kichangani) cited a potential *increase* in human-wildlife conflict as their explanation for opposing a village corridor: 'It will lead to human-wildlife conflicts' (Kichangani), 'Animals are

⁶⁵ All answers to household survey open questions translated from Swahili to English by research assistants

animals, meaning even if they are given a corridor they will still get out and destroy crops, so better for them to stay far away from us' (Kichangani), 'It is not wise at all. They are just hurting us', 'Those animals are not friendly to our activities at all, presence of them will destroy our crops' (Ikungua). Some corridor objectors also reported that there is no wildlife in this area anyway – at least not anymore – and that they do not want the wildlife to return. The prospect of wildlife returning to this area in greater numbers if the corridor were to 'succeed', is unappealing to many residents of these villages: they feel – whether instinctively or based on prior experience – that living in close proximity to wild animals will not benefit them.

Setting aside land purposely for the movement of wildlife involves an inevitable opportunity cost, as was highlighted during the Kichangani village workshop. Some attendees expressed genuine concern that wildlife presence had reduced due to (immigration-driven) population growth and corresponding increase in farmed land in and around their village; and all attendees lamented general changes in the village over the past two decades – including forest loss, loss of access to bush meat (particularly buffalo), and weather changes. One older attendee even joked that people born here no longer know what an elephant looks like. However, attendees at this workshop also showed a deep concern about the impending eviction of farmers from Kikwachu – an area edging towards the floor of the Kilombero Valley, used by many residents of Kichangani for farming⁶⁶. Given the pressure that would arise from eviction from Kikwachu, several attendees questioned the practicality of maintaining village land for a wildlife corridor. This is especially concerning given the proportion of people across Kichangani and Ikungua villages who expressed a wish for their village to have more land for farming in their village land use plan (194 out of 200 respondents), and the rather smaller proportion who perceived that their village was big enough to accommodate the needs of all its residents (86 out of 200 respondents), as shown in Figure 9.1.

⁶⁶ Farming in Kikwachu has been permitted, despite it lying outside of village boundaries, via a semi-informal arrangement which a specific villager negotiated directly with UDC, beginning in the 1990s. According to respondents, the threat of eviction has loomed for some time, but was made 'official' during a visit to Kilombero by then-president Magafuli in 2017. Residents and farmers were subsequently informed by district council officials that they would have to vacate Kikwachu by the end of August 2018.

Likert Questions responses from household surveys in Kichangani and Ikungua (n = 200)

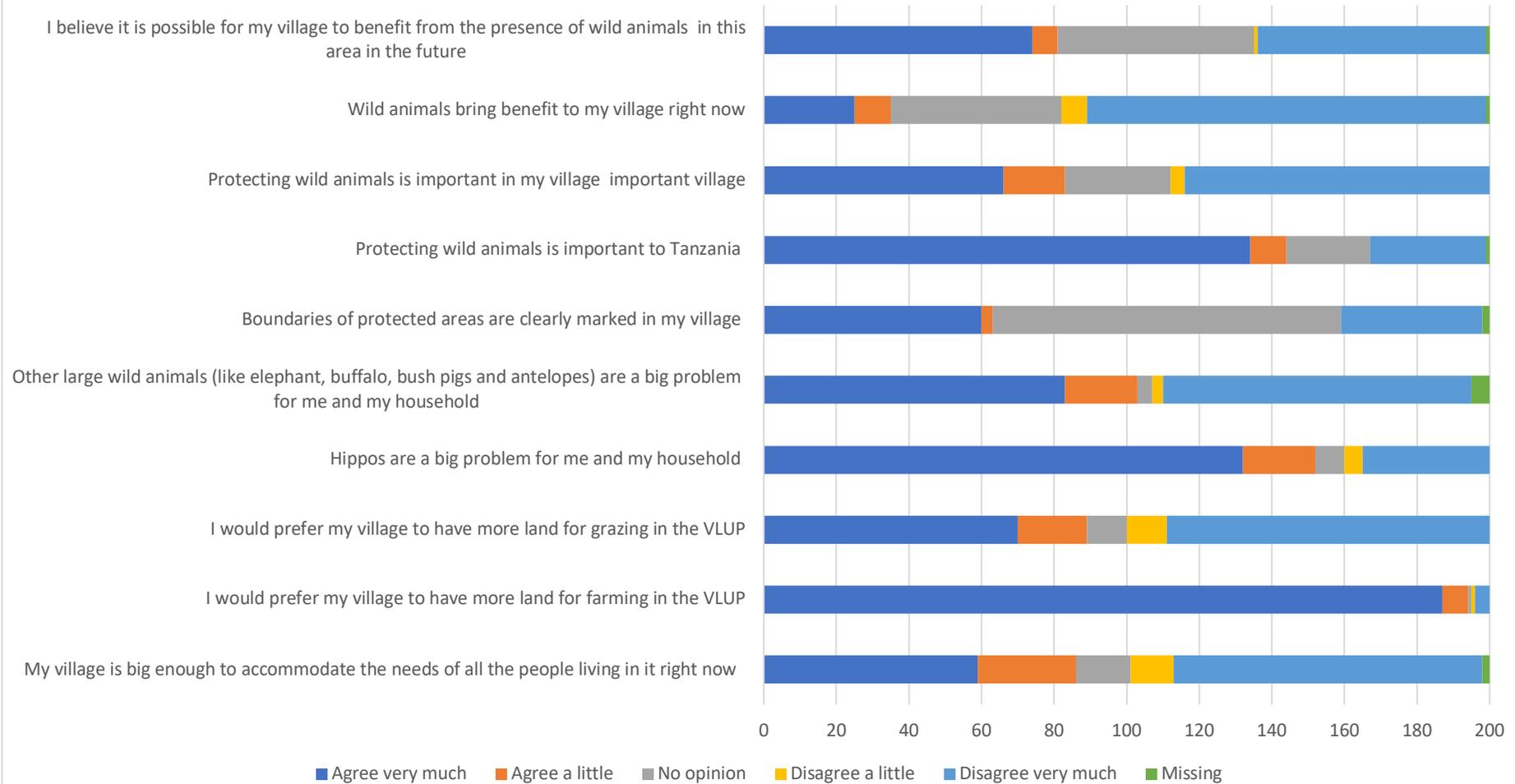


Figure 9.1 – Likert question responses from household survey

Proximity to wild animals can be dangerous to lives and livelihoods, and establishing a corridor through the middle of an anthropogenically-dominated landscape effectively represents a burden that many people simply do not want to accept. It is not the case that people in these workshops did not understand why, in theory, corridors are good for wildlife. Further, the results of the household survey suggest that many residents of Kichangani and Ikungua villages perceive that protecting wild animal is important to Tanzania (134 respondents strongly agreed with this statement, and a further 10 agreed somewhat – Figure 9.1). Ultimately, though, their sympathies for the plight of wild animals and acknowledgement of their needs did not alter the situation they face on the ground in their village. The potential future benefits of finally establishing a CBO and attracting investors for their quasi-WMA-cum-corridor space is unlikely to satisfy people who are concerned with how people in their villages are going to survive *now*. In any case, so far no WMAs have demonstrated significant tourism income potential, their economic viability is still debated, and a significant proportion of revenue accumulated from WMAs flows to the central state and away from villages themselves (Green and Adams, 2015; Homewood et al., 2015).

It is not entirely clear how these village-level perspectives and experiences can be accommodated within the collective spatial imaginary of the Ruipa Corridor explored in chapters 6 and 7, which depends on wildlife being contained within a swathe of ‘natural’ space without the use of force or hard infrastructure. If the animals do not behave accordingly, the consequences for people living alongside the corridor are potentially dire. Through these conversations, we begin to understand the consequences of the introduction of this intuitively appealing corridor, in the image of chapter 5’s *Righteous Corridors* and speaking to the rhetoric of *Instrumental Corridors*, but without the requisite planning and resources that might actually allow communities to benefit from the presence of the corridor space, or even to mitigate against the inevitable opportunity cost.

9.2.2 Engagement with the corridor space

When invited to draw up a map of their village, Kichangani workshop attendees struggled to place the corridor area. Certain things – like the school – were universally recognised as being ‘outside’ the corridor; others, such as the traditional forest, sparked much debate as to

whether they were part of the corridor or separate from it. After much discussion, attendees eventually drew a representation of their village which included a large swathe, representing their village corridor, passing diagonally through the middle of Kichangani. This does not correspond with Kichangani's VLUP as shown in Figure 8.4 of the previous chapter. When asked whether this line represented a formally designated corridor area, or simply an area where wildlife generally passes, the response was simply that animals *used* to pass through this area, but no longer did. This may suggest a lack of clarity on the status of the corridor land, perhaps due to the lack of *in situ* demarcation discussed in the previous chapter – or it may reflect a lack of engagement with maps in general. Scott claimed that often maps are primarily intended to make the situation legible to *outsiders*, and this appears to be the case in Kichangani and Ikungua, where less than half of survey respondents had ever seen a map of their village's land use plan (37% and 44% respectively). Attendees at the Ikungua workshops, of course, contended that there was no corridor in their village, and as such the maps produced in their workshops showed no corridor land at all.

Household survey data demonstrated low engagement with the village land use planning process: only 40% of respondents in Kichangani, and 38% in Ikungua, reported ever attending a village meeting in which land use planning was discussed. This means that the 'approval' of village land use plans by the village assembly, as legislated in Tanzania's Land Use Planning Act of 2007 (United Republic of Tanzania, 2007), in practice amounts not to active approval, but to tacit agreement at best. Lack of engagement with the village land use planning processes may explain both the lack of clarity on the corridor's location in Kichangani, and the outright denial of the corridor in Ikungua.

Unlike IN10 and IN11, the consultants for KILORWEMP who, as discussed in section 8.5.2 questioned the legal status of the village corridor(s) in Kichangani and Ikungua, no local community respondents, corridor supporters or objectors, commented on or questioned the legal status of the corridor. Many respondents voiced a sense of almost total powerlessness over the presence of the corridor in their village, and disengagement from the apparently democratic and participatory processes that introduced corridor land to their village in the first place. Many survey respondents clearly perceived the corridor to have been imposed upon them by 'the government': 'Once the government decides, we cannot change things',

'It is right to have a corridor because the government knows best', 'Since the government has decided what can we do?', 'The government is the government, I do not agree but what can we do?', 'Since the government forces it, I cannot oppose, but I do not support it', 'I can't oppose it because it is a government plan', 'It is a good idea to have it since it belongs to the animals, and the authorities have already decided'. In theory, VLUPs should be expressions of negotiation and collective decision-making, an outcome of participatory planning and collaborative work at the lowest possible administrative level within Tanzania's national planning complex. From the answers provided above, and the survey data showing low engagement with village planning in general, this has clearly not been the case with the Kichangani-Ikungua corridor, which is perceived by many in Kichangani village as having been imposed upon them from 'above'. Whether these impositions are understood to come from the central government, the district government, or the village government is not clear. It is also not clear whether these contentions arose from a *lack of technical knowledge* about village land use planning processes, or from *past experiences with* village land use planning processes which (as mentioned in section 8.4.2) may in fact be deeply undemocratic (Bluwstein et al., 2016; Igoe and Croucher, 2007). In other words, these respondents either have too little knowledge of village planning, or too much. Either way, the outcome is the same: many villagers simply do not feel any sense of engagement with or agency over the corridor conservation project.

As a parallel to this, one respondent in Ikungua adopted a similarly fatalistic attitude towards the presence of wildlife in his village. During the second workshop in Ikungua (WS04), this attendee remarked to me that there was not much point discussing whether people in the village wanted a corridor or not, because if animals began to pass in their village then there would not be anything villagers could do about it anyway. This respondent went on to explain that wild animals are well protected in Tanzania, stating that you will be arrested if you try to kill animals with a poison spear, as people once did. During the course of this conversation, he made reference to 'TANAPA', despite the fact that TANAPA, as the Tanzanian National Park Authority, were not involved in any way with Frontier's Kichangani-Ikungua corridor project. Here, 'TANAPA' seems to be used as a metonym for all wildlife or conservation-related authorities. With the protection of this monolithic conservation entity, the respondent explained, wild animals are, in a way, more powerful than people.

Through this section's exploration of engagement with corridor spaces, we are presented with an apparent conflation of the corridor with both planning and conservation, both of which many villagers fail to engage with, and/or feel they have little to no control over. In their paper on community-based conservation in northern Tanzania, Igoe and Croucher remark that "the word corridor almost never failed to provoke intense and negative emotions" (2007, p. 558). In Goldman's explication of a corridor project, also in northern Tanzania, she observed that the word corridor came to evoke concern in Maasai communities, who viewed it with a suspicion that the formalisation of a corridor area would bring eviction and loss of autonomy (2009). It appears that the corridor concept fits so well into the existing Tanzanian conservation complex that many people view it as a conduit for negative impacts of conservation they have experienced or known, in an echo of the corridor captured within the *Imposed Corridors* perspective of chapter 5. As such, despite the rhetoric of participation and sensitisation used by Frontier, and embodied within the artefact of the VLUP map (on the Kichangani side), the Kichangani-Ikungua corridor in many ways manifests as a representation of the least beneficial aspects of conservation in Tanzania for the people who have to live with it – or indeed within it. In the following section, I present an example of one village resident for whom the village corridor certainly manifests as a burden.

9.3 Living in the Corridor

The data presented in chapter 8, and in section 9.2 above, suggests that there is a disjuncture between the narrative of participation and due process suggested by Frontier materials, and the reported experience of the Kichangani-Ikungua corridor on the ground, which is characterised by poor engagement, ambiguous legal status, and a background hum of confusion. I was brought by my research assistant to the household of one mzee – or gentleman – living 'in' the Kichangani side of the Kichangani-Ikungua corridor, who appeared to have been caught up in this confusion. This section presents impressions of this mzee's situation, from his own perspective, and from the perspective of selected other individuals.

9.3.1 Mr Nyati's story

Mr Nyati (IN03) informed me that he had been living on the same plot of land, or neighbouring land, since he was born, and that his family (he specifically mentioned his grandparents) had

been there since before then. His house is shown in Figure 9.2. He reported that he only came to realise that he was living 'in' a corridor the previous year (2017), when members of a planning team from LTSP (presumably the PLUM team) came to measure his farm. Mr Nyati had hoped he would receive a CCRO as part of this process, but he reported to me that LTSP team members informed him that he was not entitled to a CCRO because his farm fell within corridor land. He was fearful of losing his many mature and maturing trees – teak, coconut, and banana. He expressed frustration that he had not been informed earlier, given that he had apparently been living 'in' the corridor since 2011. He reported that no one from Frontier had ever informed him of or asked about the existence of a corridor in or around his home or farm plots, nor had anyone broached the subject with him for the intervening 6 years until LTSP came to the village and approached his household. When I asked, Mr Nyati reported that he never saw wildlife⁶⁷ on this plot of land, ever.

9.3.2 “They don’t deserve getting the CCRO”: professional responses to Mr Nyati’s story
Responses to Mr Nyati’s plight from the perspective of those with a professional stake in conservation in the area were varied. IN67, a key informant (as well as my research assistant) who formerly worked for Frontier as a community liaison officer, (indirectly) cast doubt on Mr Nyati’s version of events: “Because now you can find people they've got a farm inside, you can ask them, have you seen any animals passing here in three years? Someone can say no, since I start settling here I haven't seen any animals. Because the guys know if they say there is animals passing there, then you can tell him, this is the corridor. They have to say no! To defend himself.” (IN67)⁶⁸. Ulanga District Council’s wildlife officer, meanwhile, appealed to the logic of administrative procedure, expressing outright incredulity that the presence of people, houses or farms could have been missed by Frontier’s participatory mapping activities: “That people were in the corridor even before, that is not true [...] If he was there then he could have been noted. Then the Frontier people could show presence of people. But they did not” (IN25). For IN25, who is embedded within the district and village-level planning complex, the Kichangani-Ikungua corridor exists on an official and state-sanctioned level,

⁶⁷ As noted in the first footnote of this thesis, ‘wildlife’ in this thesis generally refers to large charismatic mammals, as this is generally what is implied when wildlife, or wanyama pori, are discussed in the context of Tanzanian conservation.

⁶⁸ IN67 made these remarks as part of a general discussion, not specifically in reference to a particular case, several months after my meeting with Mr Nyati.

lending it a legitimacy which precludes the possibility that Frontier could have missed this household, or ‘failed’ (so to speak) to move him from the corridor once he had been identified. This prompts us to question Frontier’s assertions, as outlined in section 8.3, that those few people who were found to be farming in the identified village corridor spaces had volunteered to abandon their farms.



Figure 9.2 - Mr Nyati's house and farm, Kichangani Village, 'in' the Kichangani-Ikungua corridor.

When I raised Mr Nyati’s situation with IN09 – town and rural planner from the Ministry of Land, working with LTSP’s PLUM team – he responded that “if they live in the corridor that means they don’t deserve getting the CCRO”. IN09 described how the work of LTSP was supported by various tools and technology – GPS pathfinders for cross-referencing the location of village borders, tablets for accurately measuring plots within one metre of accuracy, and iron bars for marking boundaries – which formed the suite of tools used by members of the PLUM team in determining who was and was not eligible for a CCRO.

When I recounted Mr Nyati's claims to have been living 'in' the corridor for decades, IN09 responded by saying "I don't think it's right (sic) saying they have been there for, since 1960s. Because, you know...the animal corridor is not there only in 90s (sic). It's been there since ages. The animal corridor is there since ages. It's there. It's for us who disturb these movements" (IN09). Like the majority of respondents whose data was outlined in chapter 6, and 7, and aligning with one of the pillars of the *Righteous Corridors* perspective as explicated in chapter 5, this is a view of a natural corridor in which people have no place. An alternative way to interpret Mr Nyati's presence 'in' the village corridor space, apparently for some decades, could be an indication that human activities are compatible with this area being a corridor, provided people are at a sufficiently low density that sufficient space remains for wildlife to pass elsewhere: but this is not how IN09 interprets this situation.

It is noteworthy that this respondent – a planning professional with no direct professional experience in conservation – so freely and comfortably affirms the corridor as a natural entity. Such sentiments were echoed by a town planner working at Kilombero District Council, who told me "A wildlife corridor, naturally it's there [...] So when we set it aside it means we are not- we don't assume it is there. It is there naturally. It is there" (IN15). This is demonstrative of the extent to which the idea of the corridor as 'natural' is circulating within professional Tanzanian discourses even outside of conservation – and that this is a notion of the natural corridor in which people have no place, echoing Frontier's original vision for the village corridors in which people voluntarily abandoned farms in the corridor area. In this instance, engaging with the discourse of the natural is an effective way of effacing the politics of village land use planning and circumventing awkward questions about the rights of those living 'in' land designated as a corridor. In the same way that development discourses can work to depoliticise poverty (Ferguson, 1994), statements such as "It's for us who disturb these movements" and "A wildlife corridor, naturally it's there" evokes the sense of *intrinsic* nature (see section 2.1) that has become so familiar through the discursive constructions of the Ruipa Corridor outlined in chapter 6. In Mr Nyati's case, we have an example of how this kind of thinking can serve to side-line questions about where the idea of the corridor came from, or the circumstances of the corridor concept's 'arrival' in these villages – in short, the *politics* of the situation. This creates an anti-political arena (Ferguson, 1994) in which those who may

object to the corridor can be dismissed as anomalies – as problems which not only *can* but also *should* be solved.

It is entirely possible that Mr Nyati will never be forcibly removed from his settlement. From the perspective of a safari tourist, his particular patch of land is unspectacular and hard to reach, and as such (unlike some other purported corridor areas) would likely not carry the large touristic premium that would make the effort worthwhile. Nonetheless, his location ‘within’ the Kichangani-Ikungua corridor does have real-world impacts: it is unlikely now that Mr Nyati would ever receive a CCRO for this piece of land. The corridor has left him in limbo: unable to attain the security of land tenure to which (he believes) he is entitled, for a piece of land in which he has invested and through which (he insists) no wildlife moves, in the name of preserving the ecological integrity of a distant land (i.e. the Selous and Udzungwa protected areas, by protecting the integrity of the Ruipa corridor) from which he receives no benefit. The arrival of LTSP into this district and the commencement of its boundary surveying activities catalysed the debate over Mr Nyati’s circumstances, bringing to the surface latent ambiguities about the corridor’s status; and highlighting gaps in the perspectives of those with professional experience in the region, and those whose lives and livelihoods are inextricably tied up with this village land.

9.4 Managing the Kichangani-Ikungua Corridor: Working at the Frontier

“[Frontier] had been doing a bunch of surveys [...] in the bush, to figure out where the wildlife corridors should go. Which is largely because they had an ecologist working for them. I really don’t know why they did this. Certainly the corridors were not based, at all, on where the elephants were or weren’t” IN72

This striking statement came early in one of my final interviews, with a former project manager for Frontier who worked on their village corridor project for around 18 months until shortly before Frontier left the area altogether in 2011. The statement set the tone for what was to be an illuminating conversation. In talking about his experiences of working with Frontier, IN72 painted a picture of an organisation which worked to present a veneer of legitimacy, but for which strategic decision-making was – perhaps unsurprisingly – centred

almost entirely around profit maximisation. Casting previous interviews in a new light, this interview came to be one of the final pieces of the puzzle of how Kichangani and Ikungua villages came – allegedly – to have dedicated wildlife corridor land in their land use plans.

9.4.1 Laying the groundwork: enabling conditions for the Kichangani-Ikungua corridor

IN72 claimed that Frontier’s overarching aim, in all projects, was to make as much money from volunteers as possible. However, they also maintained a veneer of prestige through successful grant applications, channelled via its not-for-profit arm, The Society for Environmental Exploration, as mentioned above. IN72 joined Frontier’s project “Conserving the Ruipa Corridor: facilitating cohesive management between diverse stakeholders” at a time when nobody who had worked on the original grant application remained. When he arrived, the corridor project was suffering from an acute lack of volunteers: “No-one wanted to go there, for some reason. Well, because it wasn’t about animals, it was about people. And to sell a project to a teenager, it has to have animals. They don’t care about people”.

Because of the difficulty of attaching volunteers to the village corridor project, it was never able to generate much income for Frontier. IN72’s role essentially became delivering a corridor project, as per the application to the Darwin Initiative, under severe budget constraints. His approach was to effectively subsidise the village corridor project with income from a separate Frontier project in the area, conducting research on behalf of the Kilombero Valley Teak Company (KVTC) assessing the “conservation value” (IN72) of their land. IN72 emphasised that KVTC’s plantation land “basically connects the Kichangani-Ikungua corridor all the way into the [Kilombero Valley] floodplains [...] So, my hope was, if I could keep through KVTC just a trickle of funding which would make this project financially viable, and also work with them to realise the value of the conservation land that they had, then that would keep this corridor, or a fragment of it, going”.

9.4.2 Making the Kichangani-Ikungua Corridor

By the time IN72 joined the Frontier corridor project, those previously working on the project had begun the process often referred to in Tanzania as sensitisation⁶⁹. Considering the

⁶⁹ In the Tanzanian village context, this generally involves introductory meetings with village leadership (typically the village chairman and village executive officer, as well as other members of the village council e.g.

preliminary work for introducing corridors to these villages more or less complete, he picked up where the previous manager left off: by introducing himself to village authorities, before bringing representatives from Ulanga District Council (UDC) into proceedings. As we know, the ultimate aim of this series of meetings and negotiations was to develop and formalise VLUPs which would include designated corridor areas. That villages are required to have VLUPs approved by the district council and registered with the Ministry of Land before village residents are able to obtain CCROs was, according to IN72, an incentive for villages to work with Frontier: “So that was the carrot we had, which was you get a land use plan, we might get a corridor out of it”. This corroborates concerns that, due to practical constraints and lack of resources, land use planning in Tanzania can be easily co-opted by powerful ‘outsiders’ (investors, the state, development or conservation agencies or, in this case, a pseudo-environmental voluntourism company), undermining the ‘participatory’ foundations of the village land use planning process (Walwa, 2017).

IN72’s interview data adds more detail to the story presented in section 8.3 of chapter 8, which details how Frontier developed Kichangani and Ikungua’s VLUPs using both ecological and social data. IN72 reported that village surveying exercises were conducted by teams of village residents, assisted by employees of UDC, and coordinated by Frontier via IN72. IN72 taught village residents to use GPS to mark important points and boundaries in the village – forests, settlement, farmland, grazing areas, roads etc. The role of the district staff members was to record that data on paper, while IN72 and another Frontier staff member “basically just followed them round like quality control”. IN72 reported that the cooperation of two tiers of government – village and district – in one team, gave proceedings a vital legitimacy. After this, IN72 held long follow-up meetings with village councils, this time with a member of staff from UDC also present. This member of staff – IN60 – was, according to IN72, instrumental to the ultimate inclusion of corridors in Kichangani and Ikungua’s VLUPs: “[He] and I made friends because he was clearly the person who wanted to get something done. And no-one else really cared that much”. IN72 described a mutually beneficial working relationship in which IN60 benefited from IN72’s prestige and access to resources, and IN72

environmental committee leaders, village wildlife wardens). Where necessary, this is followed by general village meetings attended by members of the village assembly (all adults resident in the village) who are able/willing to attend.

benefited from IN60's "extremely nuanced understanding of Tanzanian...well, everything". He described instances in which, in collusion with IN60, IN72 would feign inability to understand Swahili, or present as angry or upset or confused, in order to accelerate proceedings or secure support.

Once the data for drawing up VLUP maps had been collected, IN72 held further meetings with village councils to explain where the key wildlife areas were, and propose setting aside space in the form corridor areas. Throughout these meetings, IN72 made clear, he reported, that "I'm not there to tell them what to do [...], I'm acting as the funder for the land use plans". However, IN72 did concede the importance of his embodied authority in the development of the Kichangani and Ikungua VLUPs. Throughout planning and negotiation, IN72 perceived that his position as a white manager for an international organisation with a longstanding local presence was more influential than any 'proof' he might have been able to provide about the existence of a wildlife corridor: "If I had gone to [...] any of those stakeholders, the district council, the village council, whoever, with evidence, with scientific evidence about where the elephants were or weren't, it's kind of meaningless. Like, they don't care about the scientific evidence. If I'd stood up going: this is the thing I've been looking at, I think the elephants go here, that means something to them. That I have stated my position to be that. The fact that I have evidence backing it up isn't really relevant".

In sum, IN72's embodied authority as a white male with (perceived or actual) expertise and power, was more important in the agreement to and eventual construction of the Kichangani-Ikungua corridor, than the (perceived or actual) presence of wild animals ever could have been. This echoes Kothari's idea of the production of the "professional" development expert, often identified less by the "extent and form of their knowledge" than by "who they are and where they come from" (2005, p. 426). IN72 is able to mobilise the bundle of powers available to him to realise Frontier's vision of a joint village corridor. Despite his own lack of experience (by his own admission), he was able to quickly connect with key individuals, and to draw them, and others, into arrangements that would most effectively and efficiently channel the corridor idea into the (potentially very powerful) spatial planning mechanism of the VLUP.

9.4.3 The final outcome

Once agreed to, and rough unofficial maps drafted in various forms (including on the dusty bonnet of a Toyota), the relevant data (both the previously-collected volunteer data on wildlife presence, and the community-collected village surveying data) was sent to the district council – a crucial step in the process by which VLUPs become formally incorporated into district and national land use planning. The district council would also be responsible for using the data to draw up VLUP maps for the applicable villages. IN72 reported that the data that had been collected was on paper copies only, which were handed over to the district council for the single person with GIS expertise to plot, in order that the corridor would be mapped out and space set aside within the VLUP accordingly. According to IN72, after being finally handed to UDC, this data was lost, permanently: “And [the mapping person] just didn't use the data. He just drew lines on a map. That made no sense. [...] When he drew it, it went like this *{indicates straight line}*. And I was like, well I know that's not true. Coz I know there's this weird lip that sticks out. This peninsula, I guess, of like, wild stuff. And that wasn't on the map. And I knew he'd just made it up. But there was nothing I could do about that because it took them six months to make up the data, and I was like, well [...] they had all the data and we didn't have a copy.” The resulting corridor straddling the Kichangani-Ikungua border was, according to IN72, not an accurate reflection of elephant movement on the ground. Rather, it was a reflection of what was easiest to draw using GIS: a more-or-less straight line, 2.5km deep and straddling the Kichangani-Ikungua village border, with 1.25km falling over each side of the administrative boundary.

IN72's account of his experiences in Ulanga district highlights, yet again, the importance of individuals - their ambitions, personalities, and bundle of powers available to them – in the practice and manifestation of conservation in Tanzania. The collaboration between IN72 and IN60 – one a charismatic and energetic outsider, the other a savvy and determined insider – facilitated the rapid introduction of the corridor into the VLUPs of two bordering villages. Both men shared a deeply-held belief in the importance of the corridor to achieving crucial conservation objectives in this part of Tanzania, and quickly determined how to work together most effectively, using the bundle of powers available to them, to achieve that. However, this shared enthusiasm and genuine commitment did not prevent the emergence of a village corridor, according to IN72 himself, almost unfit for purpose. Though the map produced, if

not *by* Frontier then at least *because* of Frontier, did not achieve ecological connectivity even in its own terms, it is nonetheless supremely *legible* (Scott, 1998). To clarify, this does not mean that the corridor was clear to those expected to live with it on a day to day basis – as discussed in in this and the previous chapter, this was far from the case. Rather, to quote Scott, the maps produced as part of the Frontier project “make the local situation legible to an outsider” (1998, p. 45). The map made the corridor legible to any authorities involved with assessing or measuring the village corridor space – or indeed, the success of Frontier’s corridor project – and, to fulfil this role, it did not actually *need* to capture the complexity and unwieldiness of the so-called ‘natural world’. Crucially, from the moment the corridor entered into the district’s legal and administrative planning system, via a simple, but palatable representation on a map, the corridor was endowed with a *potential*: it became an actor/actant in the corridor assemblage. To paraphrase Scott, while falling short of its goal, the Frontier project has nonetheless stamped the landscape with the imprint of its own design (1998, p19).

9.5 Discussion

That the corridor is enshrined in a village land use plan comes with an implied narrative of inclusion and participation – of a land use plan developed from the bottom up, as opposed to enforced from the top down. However, as discussed in section 3.3.2 on land use and land use planning, the village land use planning process in Tanzania can become a ‘repertoire of domination’ (Walwa, 2017): a process that should be participatory is co-opted by powerful outsiders like investors, development or conservation agencies – or, in this case, pseudo-participatory for-profit voluntourism companies. As is often the case, there is a divergence between the rhetoric of conservation strategy and the lived experience of those who are impacted by conservation interventions. In the case of the Kichangani-Ikungua corridor, we are left with a manifestation of ecological connectivity which is aligned with community-based conservation, but which is not recognised as beneficial by many of those who have to live with it, and which many people believe – or perhaps simply assume – has been imposed upon them by some unnamed governmental power. This is in in direct contravention to the stated objectives of both village land use planning and community-based conservation in Tanzania.

In light of the revelations discussed in section 9.4 of this chapter, the plight of those living alongside or even ‘in’ the corridor, and the corridor’s status as ‘natural’ or otherwise, becomes even more fraught. IN72’s unequivocally-stated belief that the Kichangani-Ikungua corridor as designated in the VLUP map is no reflection of the available data on wildlife presence in the area, and that it never has been, suggests that claims to pre-history and inalienable, immutable nature made by IN09 (as related in section 9.3.1) are not only misleadingly apolitical and ahistorical; they are also simply inaccurate.

Harris and Hazen posit that protected areas are often designated and mapped according to “shifting notions of appropriate or desirable nature (Harris and Hazen, 2005, p. 109), emphasising that maps hold cachet both politically and scientifically, and arguing that this ‘mappability’ is both performative and productive in conservation. In this case, the ‘mappability’ of the unfolding Kichangani-Ikungua corridor has been critical: here, the mere presentation of a plausible corridor was sufficient for the corridor to be quickly and easily embedded within Tanzania’s established and government-sanctioned planning process. The complexity of events that culminated in the creation of the Kichangani VLUP – not only the events described in this and the previous chapter, but also connections to the production of the Ruipa Corridor space discussed in Part II, and even to the broader ideas about corridors and conservation practice explicated in Part I – is completely effaced by the neatness and completeness of the corridor as depicted on the map displayed outside Kichangani’s village office.

This is an example of how the boundary object and the assemblage can synthesise. In this case, the intuitively appealing corridor boundary object, in the ‘hands’ of Frontier, was brought to ‘touch down’ in the Kichangani-Ikungua space. The corridor boundary object then became ‘strongly structured’ by way of all the other elements it connected with as part of the broader conservation corridor assemblage. This includes the planning mechanism of the VLUP; the presence of forest on the ground in Kichangani, the spatial organisation determined by Frontier and codified in map form, and the co-optation of KVTC’s Nakafulu block into the Ruipa Corridor space. It also includes volunteers’ desires about a project focusing on animals and their corresponding lack of enthusiasm for Frontier’s corridor project, the spatial planning tools at the disposal of a single member of UDC staff, the profit-making motivations of

Frontier, and the quasi-legal status achieved by the corridor as soon as it entered into Tanzania's planning complex. Here, the corridor boundary object acted as a force that gathered these elements together – both international from Frontier, and local from the village level – to result in the very specific manifestation of the Kichangani-Ikungua corridor, and Mr Nyati's experiences of it. This highlights the singular non-human power of the conservation corridor concept in Tanzania.

10 Conclusion

In this thesis I set out to bring the ‘enabling metaphor’ of the assemblage to a consideration of the production of corridor spaces – both discursive and literal – across different spatial levels. I have explored this in the preceding empirical chapters by investigating: the perspectives of professional conservation stakeholders on what corridors are and what they can achieve; the ways in which a specific regional corridor area is discursively constructed and recognised by different stakeholder groups; and the manifestation of a small-scale corridor space on the ground. This work took place across three different spatial levels, defined as the national, the subnational and the local, broadly reflecting the structure of government in Tanzania. However, this was used as a schematic device, and from the outset, by adopting the lens of the assemblage, I allowed for the possibility that various conservation actors could articulate with each other in ways that could transcend the implied vertical hierarchy of the local-global scale. The explorations of the conservation corridor presented across the three parts of this thesis can be considered vignettes, or snapshots, of the Tanzanian conservation corridor assemblage considered from different perspectives. As such, while I cannot claim to have mapped Tanzania’s entire corridor assemblage, I have explored some key corridor moments by adopting different viewpoints, in an attempt at ‘seeing multiple’ – “observing and evaluating [assemblages] from multiple standpoints [...] within a given structure” (Rocheleau and Roth, 2007).

As research progressed, I began to think of the corridor as a motif, repeated or invoked in various guises – through text, maps in village offices or projected onto screens in beachside hotels, conversations with planners or project managers, hand-painted signs or spray-painted arrows, the presence or absence of ‘natural’ vegetation, the presence or absence of teak trees, officially and anecdotally reported instances of conflict between wild animals and people, and more – as I moved through the terrain of my enquiry. These invocations conveyed a symbolic meaning of connectivity, and generally an implication of conservation good. Exceptions, where the notion of the corridor was questioned or doubted or debated, were rare among conservation and planning professionals, across all scales examined. This suggests a widespread acceptance – or at least a tacit acquiescence – of the corridor idea in these circles, meaning that most manifestations of the corridor were contributing to the ever-

burgeoning Tanzanian (and by extension global) corridor assemblage, which in turn contributes to the sense of the corridor as an established conservation truth.

The following section presents some key theoretical findings based on the empirical data presented in this thesis, pertaining to the six overarching research questions outlined in section 1.5. Due to the nature of the thesis, which attempts to explore the conservation corridor as an assemblage of complex connections, some of the research questions overlap, as indicated at the beginning of each sub-section of section 10.1 below. These subsections speak to overlapping and deeply connected issues, but have been separated out broadly into three themes: discourse, space, and the intransigence of the corridor as an assemblage. This provides an account of the construction of the corridor spatial imaginary which sits within scholarship on nature as ‘something made’, speaking to the themes explored in chapter 2 of this thesis, and reflecting Braun and Wainwright’s contention that “social nature is produced at [the] epistemological/ontological junctures where concepts, actions and matter get mixed together” (2001, p. 41). Section 10.2 presents some practical implications of my findings, with a focus on the particular difficulties of managing people in relation to corridor spaces, and on the considerations of making conservation interventions in ‘uncharismatic’ landscapes. The final section discusses limitations of this research project, and avenues for further research.

10.1 Empirical findings and theoretical contributions

10.1.1 The discursive construction of the corridor

- How are corridors for conservation discursively constructed by conservation stakeholders?
- What kind of ideas underpin support for (or objection to) corridors for these different groups?

The discursive invocations of the corridor across the scales I explored in this thesis were often couched in terms of the corridor as a natural phenomenon. However, although the only outright examples of professional conservation stakeholders explicitly questioning or rejecting the corridor as an idea were those who aligned with the *Imposed Corridors* perspective, elicited using Q in chapter 5, the question of whether the corridor is ‘natural’ or not was complex. Collectively, all three perspectives extracted using Q uncovered a kind of latent ambiguity towards the notion of the “natural” in corridors. The data presented in the

chapters of parts II and III further complicated this question. Chapters 6 & 7 showed how some conservation actors perceived the Ruipa Corridor, in a literal sense, in 'natural' forest coverage or encounters between people and wildlife; others expressed that the corridor concept emerged out of necessity as the Kilombero landscape transformed over time – from wildlife roaming unrestricted through 'open' space, to restricted areas of regular and concentrated wildlife movement. The data presented in chapters 8 & 9, meanwhile, demonstrates how the idea of 'natural' and timeless connectivity across the Kilombero Valley between the Udzungwa and Selous ecosystems was picked up by Frontier and used to support the creation of a village corridor space at a much smaller scale. This space was subsequently sustained by several key actors with influence within land use planning and conservation, who used the idea of the corridor as a 'natural' entity to justify this use of precious village land – even if the corridor space itself simply followed administrative boundaries and ultimately failed, allegedly, to meaningfully incorporate scientific data on wildlife movement.

There were other elements of the perspectives on the abstracted corridor outlined in chapter 5 which were present in conversations pertaining to specific corridor projects. This was particularly evident in the data presented in chapter 6 from the regional stakeholder workshop, where attendees voiced a strong desire for corridors to be demarcated on the ground, but showed an aversity to the use of hard infrastructure to separate people from wildlife. This clearly resonates with the *Righteous Corridors* perspective outlined in chapter 5, along with the strong sense that the 'right' kind of technology and planning can facilitate the 'freeing up' of space for nature. In the Ruipa Corridor more broadly, this aesthetic order was perceived in areas of 'unbroken' natural vegetation – even in instances where intact 'natural' forest corridors were in fact the outcome of a discrete and bounded space for teak plantation, with boundaries staked out by electrified wire fencing until relatively recently. When applied in the context of corridors, the bounding of discrete spaces for conservation's territorial fix tends to translate to an emphasis on structural over functional connectivity, with an implication that simply securing the space means that conservation has been achieved (Harris and Hazen, 2005). At the village scale, the stylised map outside Kichangani's village office conveyed this sense of structural connectivity cartographically: it presents an ostensible connection of forested spaces, following administrative boundaries, and suggesting a pleasing sense of order with spaces for wildlife and spaces for people clearly marked out. This

emphasis on the aesthetics of ordered natural and social spaces is redolent of the spatial and social engineering of ‘high modern’ projects of statecraft (Scott, 1998).

These discursive constructions of the corridor at all levels – the national, sub-national and local – reflect conservation’s dominant territorial fix, as discussed in section 2.3. We might think of this in terms of path dependence, after Adams (2010), as discussed in section 2.2.1, which emphasises how policy narratives become entrenched in the minds of conservation practitioners and stakeholders, making it difficult to think in terms other than those already established. According to Hess and Fischer (2001), communicating clearly about corridors necessitates moving away from deeply entrenched and (potentially) simplistic storylines, and towards clarity in goals, motivations, and limitations of the corridor as a conservation strategy. Accepting and embracing complexity is, however, at odds with the tendency towards narrativisation in conservation, which often serves to alleviate uncertainty in policy and practice. The trouble with the arguably simplistic corridor narrative that permeates the data in this thesis is, as Braun and Wainwright put it, that “the very possibility of speaking to nature with some level of certainty – and by extension, of acting upon the physical world – entails foreclosing other possibilities” (2001, p. 41). In other words, the things we *say* about corridors – and indeed the things we don’t say – have real-world impacts on the things we *do* about corridors. This resonates with Goldman’s contention from her study into a wildlife corridor in northern Tanzania, as discussed in chapter 1 and again in chapter 5, in which she suggests that the appeal of the corridor concept could foreclose or stymie the development of other possibilities.

Chapter 5 delved further into the dynamics of discourses on corridors and considered how this dynamic might impact on conservation practice by obscuring fundamental inconsistencies in what we might consider stories about the status of corridors. I argued that, in the discursive construction of the corridor in Tanzania, the boundary object and the discourse coalition are mutually constitutive, supported by influential actors who engage in the established language of the corridor and support its formal codification. In so doing, these actors contribute to the corridor’s burgeoning hegemony. Tanzania occupies a prominent role on the global conservation stage, and as such, its continued engagement with the corridor concept at this national or abstracted level, as well as through its formal regulations, will add

to the impression of global consensus on corridors. However, the impression of consensus presented in international conservation corridor discourse, as outlined in chapter 1, belies the complexity and diversity of opinion within this professional conservation community. Nonetheless, the corridor is able to enter into and function within Tanzania's conservation complex at various spatial levels because it speaks to, and does not threaten, the established status quo of the 'territorial fix', i.e. setting out bounded spaces to 'contain' nature. This makes the corridor *discursively* mobile and scalable within Tanzania's broader conservation corridor assemblage.

10.1.2 The production of conservation corridor space(s)

- Do discursive constructions of corridors differ in different locations, at different levels of spatial scale, within a national conservation landscape?
- How do the discursive constructions of corridors shape the production of corridor space?
- How do corridors impact on the people who must live with or alongside them when they 'touch down' in specific places?

The empirical chapters of this thesis began with an explication of corridor perspectives held by professional conservation stakeholders, who were invited to consider their perspectives on what the corridor is, and what it is for, in an abstract sense. This 'baseline' data gave me insight into the corridor's overarching or archetypal "implicit geographical imaginary" (Evans, 2007, p. 130), when not tethered to a specific place or project. As an ideal, or ideational, space, the corridor for conservation emerges primarily as a conservation good – as a designated space for nature to thrive unimpeded by people. In this way, this dominant spatial imaginary for the abstract corridor aligns with Bluwstein's verdict on landscape conservation in Tanzania, which asserts that it is intended to "rearrange and fix in time and space human populations to allow wildlife to thrive at the population level in an unbounded, abstract space" (Bluwstein, 2018, p. 163). This resonates particularly with chapter 5's *Righteous Corridors* perspective, and to a lesser extent with *Instrumental Corridors*.

As mentioned in section 10.1.1 above, the core features of the imagined corridor space outlined in Part I of this thesis resonate with the territorial approach to conservation that dominates in Tanzania. These dominant 'baseline' ideas for the corridor space are strongly

evident in the regional corridor space subsequently explored in Part II. I argue that the Jones reports, which positioned the Ruipa Corridor almost as a metonym for the overall ecological health of the Kilombero Valley, created the necessary discursive space – or perhaps a discursive frontier, after Bluwstein and Lund (2016) – in which ideas most strongly aligning with chapter 5's *Righteous Corridors* could find expression and be affirmed by conservation stakeholders already active in the Kilombero Valley area. Across Part II of this thesis, I make the argument that the Ruipa Corridor had a stronger discursive presence than a material one. However, we can still conceptualise the Ruipa Corridor as a produced space in the sense explored in sections 2.3.1 and 2.3.2, after Lefebvre and Massey: although there has been very little activity on creating, restoring, or securing connectivity on the ground, these ideas are still projected onto existing spaces in the Kilombero Valley following the logic of demarcation and separation between spaces deemed suitable for wildlife and spaces deemed unsuitable for wildlife. The ideas 'channelled' into the Kilombero Valley about connectivity found expression in places which captured some notions of structural connectivity, as evidenced by the co-optation of both the Namwai and Nakafulu forests, and the distinct ways they have been folded into the Ruipa Corridor spatial imaginary. Those two spaces were physically disparate, but became discursively connected within the spatial imaginary of the Ruipa Corridor. I therefore argue that the Ruipa Corridor, as a manifestation of regional connectivity, can be understood as a space which came into being due to a confluence of knowledge-making activities and already-established conservation practices which 'gathered' in the Kilombero Valley conservation landscape – through the activities of KILORWEMP, KVTC, district and village councils, and to a lesser extent Frontier – over a sustained period of time.

The corridor visions explicated at the national and subnational scales, of a separate corridor space as a 'container' for spontaneous and natural wildlife movement, found expression in the micro scale in the Kichangani-Ikungua corridor project. The Kichangani-Ikungua corridor represents a material expression of the confluence of ideas about nature, people and connectivity made possible through the opening of the Ruipa Corridor discursive space. Frontier's presence in the Valley, which preceded their corridor project by over a decade, meant they could readily supply data on wildlife presence in the Valley to be used in the first Jones report on the Ruipa Corridor, as discussed in chapter 6; this in turn facilitated Frontier to create their *own* corridor project by citing the Jones reports as evidence of a necessity to

‘restore’ this unique ecological connectivity before it was irreversibly lost. The production of the Kichangani-Ikungua corridor entailed another ‘gathering’ ((after Whatmore, 2002, who uses the verb “gathering” to describe the formation of assemblages) – this time including not only ideas about connectivity projected onto the Kilombero Valley landscape, but also of volunteer desires, local-level Tanzanian politics and governance processes, limited resources, and the profit-making motivations of Frontier as an organisation. These elements came together due to the intentional efforts of charismatic and determined individuals attached to the Frontier project, who worked to embed their ideas of what a conservation corridor was with the state-sanctioned planning mechanism of the village land use plan. Indeed, ultimately, the corridor aligned with village land use plans in a very literal sense, with the corridor space itself following the administrative boundary separating Kichangani and Ikungua.

As discussed in chapter 8, Frontier recognised relatively early on that it was beyond the scope of their corridor project to redress what they perceived as an endemic lack of coordination. As such, they made a strategic decision to narrow their focus to four villages, and then eventually to just two, out of around 13 falling within the purported Corridor area. Frontier’s decision to narrow the scope of their project in this way is perhaps evidence of what Scott (1998) calls a tendency towards miniaturisation. This occurs when planners, faced with the chaos and unruliness of (social and ecological) reality, create smaller, more manageable micro-terrains which, while unable to deliver the kind of large-scale transformation originally envisaged, do deliver aesthetic order. Indeed, Scott emphasises the "powerful aesthetic dimension" to high-modernist visions, which “tend to "travel" as an abbreviated visual imagery of efficiency that is less a scientific proposition to be tested than a quasi-religious faith in a visual sign or representation of order" (1998, pp224-225). The result has been one bounded area of (attempted) ecological connectivity, which links one area (KVTC’s Nakafulu Block) with another (a ‘WMA’ of unclear legal status, bordering Selous Game Reserve), but which has no connection to or influence over the surrounding Ruipa Corridor space ‘within’ which it sits. Indeed, the two different ‘halves’ of the Kichangani-Ikungua corridor barely have any meaningful connection with each other. As such, the only explicit attempt at generating a material manifestation of the Ruipa Corridor is, in fact, a small and tightly bounded material corridor floating unmoored within the much larger, more discursive Ruipa corridor.

10.1.3 The singular staying power of the corridor as an assemblage

- How are corridors for conservation discursively constructed by conservation stakeholders?
- Do discursive constructions differ in different locations, at different levels of spatial scale, within a national conservation landscape?
- How do the discursive constructions of corridors shape the production of corridor space?
- What else contributes to how corridor spaces manifest on the ground?
- How do corridors impact on the people who must live with or alongside them when they ‘touch down’ in specific places?

This thesis has focused on the role of discourses and discursive constructions in the production of corridor spaces, and data across parts I, II and III have demonstrated that the corridor boundary object has a discursive flexibility, versatility, and scalability, that facilitates the carving out of corridor spaces in different contexts, as outlined in sections 10.1.1 and 10.1.2 above. However, the appeal of the corridor alone or the discursive scalability of the corridor concept does not explain the corridors apparent staying power – its intransigence – when it touches down in a specific place, even when the project itself is not a “success” even on its own terms, as is epitomised in the Kichangani-Ikungua corridor.

With the Kichangani-Ikungua corridor, we see how the corridor can linger on: even years after the departure of Frontier, its primary supporter; even without regulations to support corridor spaces; even with almost no on the ground demarcation; and even with lukewarm support from the people who must live with (or indeed within) the corridor. We cannot explain the corridor’s staying power in the village of Kichangani (and to a lesser extent in Ikungua) through endorsement from local people; the survey and village workshop data explored in chapter 9 shows that there are many people who dislike the corridor. This is unsurprising given there is no mechanism through which communities might derive a tangible benefit from the existence of this corridor, beyond general benefits of having a forested area. It also cannot be entirely explained by the presence or movement of wild animals themselves, scarce as they apparently are in these villages now. Neither can we explain it through stringent

application of rules and regulations: there are insufficient resources to truly guard or police the borders of the corridor space, and the corridors legal status is ambiguous.

This is the point at which the “enabling metaphor” of the assemblage, as discussed in section 2.6, can enter as a useful concept. As Tsing says, "Thinking through assemblage urges us to ask: “How do gatherings sometimes become "happenings," that is, greater than the sum of their parts?" (2015, p. 263). My data has shown how the corridor concept has touched down in a specific place not due to a linear process of professional science informed decision-making, nor a bottom-up, community-led conservation-focused planning process, but rather a hodgepodge of variously connected people, things, processes and thoughts. This jumbled assortment includes officers of district government, voluntourism income, border disputes, biophysical properties of teak trees, the aesthetics of connectivity, forms of professional practice, the presence and absence of wild animals, appeals to timeless wilderness, and tropes of community-based conservation. Using the assemblage concept enhances our understanding of the corridor’s burgeoning hegemony by showing how there need not be rational or obvious intent behind the arrangement of the elements in an assemblage into the shape of a corridor. Rather, there are key actors who come to recognise the corridor in the many and varied elements – including the non-human and the inorganic – that gather together into a corridor constellation. Some of these elements came together almost arbitrarily – particularly at the village level, where the difference in status between the Kichangani and Ikungua ‘halves’ of the corridor turned on the division of a planning team on a given day. Nonetheless, these various elements are now cleaving together awkwardly but consistently in a recognisable corridor arrangement.

Alternatively, we could think of the corridor like a “magic eye” picture, where the corridor impression is perceptible to those who have trained their vision in the ‘right’ way. Key actors that can perceive the corridor in this way may come to “internalise” the idea of the corridor – as captured within the “territorialisation of mind”, after Bluwstein and Lund, explored in chapter 6 – and begin to act accordingly, orientating themselves towards the corridor in a process of mutual reinforcement. This finds a stark expression in the perspectives of IN60, as discussed in section 8.5.2, who claims that even former corridor areas which are no longer functioning should be honoured through some kind of demarcation as a way to “open

people's minds to know that there is the wildlife corridor here which has been killed". Meanwhile, IN72 expressed surprise and delight to learn that, in the absence of any 'proper' signboards being erected after Frontier's departure, members of village leadership still continued to demarcate the corridor area in the form of spray-painted arrows, as shown in section 8.4.1. Both of these respondents speak to the importance of the 'territorialisation of mind' in the production of the Kichangani-Ikungua space, which emerges through the creation of political and environmental subjects, and by extension the production of sovereignty which, according to Lund, is more of a *de facto* function of space-making practices, than of a *de jure* claim reflecting an ideology of law (2011). As such, I argue that understanding the appeal and persistence of the corridor for conservation in Tanzania is an outcome of a concatenation of different kinds of agency and power, expressed in various ways and by a multitude of actors and actants who are not necessarily working to a 'master' strategy or plan, or acting under a coercive power that compels them to conform. Rather, they travel in the 'grooves', to paraphrase Lorimer (2015), left in conservation landscapes by previous conservation discourse and practice. Traces on landscapes are sufficient when the *discursive* presence of the idea – in this case, the corridor – is sufficiently strong.

The manifestations of the Ruipa and Kichangani-Ikungua corridors are therefore emblematic of how assemblages do not need hard edges or clean contours to be perceptible; and they do not need to have an undeniable material presence to be 'real'. They simply need to build up sufficient critical mass, through people's actions, activities and words, and facilitated by pre-existing discourses that shape what is known and knowable, and facilitated by artifacts and entities like maps, GIS technology, trees and state-sanctioned planning mechanisms to give them momentum, and some vague semblance of materiality for the corridor concept to 'cling' to. In the case of the Kichangani-Ikungua corridor in particular, pro-corridor stakeholders were able to draw from and deploy these various elements in support of the broad-based corridor vision if they chose to do so. The emergence of the Kichangani-Ikungua corridor therefore troubles our understanding of scale, especially administrative scale in Tanzania. In the Kichangani-Ikungua corridor – the most obvious and tangible manifestation of a corridor explored in this thesis – the corridor was fairly easily 'imported', so to speak, by an 'outsider' organisation able to align the corridor idea with the rhetoric of community-based conservation and state-sanctioned mechanisms for land use planning. Frontier was able to

usher in a corridor space that served the needs and desires of this UK-based, internationally-operating organisation, their international clientele, to align this with the village level via the VLUP, imbued with legal legitimacy via both the district and central governments, and positioned as contributing to regional connectivity as being part of the Ruipa Corridor. As such, while manifesting at the local scale, the Kichangani-Ikungua corridor is a product of connections and intersections at international, regional and local levels.

Conceiving of the corridor as an assemblage therefore helps us to more fully understand Goldman's (2009) contention that the corridor can be tool, strategy, and naturally-occurring phenomenon all at once. It also helps us understand how corridors can 'stick' to landscapes, showing that there is merit to Goldman's concerns that the corridor's proliferation in Tanzanian conservation might hinder the development of alternative, more complex, landscape configurations. There is an old adage, attributed to American journalist H. L. Mencken, that for every complex problem, there is an answer that is clear, simple and wrong (Carrington, 2018). In this case, the danger is less that the corridor is 'wrong' per se, but that it is so simple, and fits so well into Tanzania's established conservation complex, that once they 'arrive' at a place, it can be quite difficult to get them to 'leave' again. However, this is not just an intellectual consideration – the stakes are high for people too. This is explored in the following section, which looks at the practical implications of my research findings.

10.2 Practical findings and implications

10.2.1 People and corridor spaces

10.2.1.1 *Benefits and burdens*

Ultimately most people in the Kilombero Valley depend on extensive subsistence farming, and many people living in Ikungua and Kichangani villages feel that they cannot conceivably sacrifice space for wildlife conservation in the form of a corridor. Most village respondents reported that they do not benefit from the presence of the corridor or from wildlife – or do not perceive that they benefit from them – in any meaningful way, as is evident in the data presented in chapter 9, and as such many people will simply not want a wildlife corridor unless they are offered a feasible and timely alternative to satisfy their livelihood needs. Promising that conservation dividends will be forthcoming at some unspecified point in the future is not sufficient. In this context, educating people on the importance of wildlife corridors, as is emphasised in the *Righteous* and *Instrumental Corridors* perspectives in chapter 5, would not

address the issue: local people do not lack understanding of why corridors are allegedly important for wildlife conservation, nor do they profess a dislike or lack of understanding of conservation in Tanzania more generally. They simply do not want the possible burdens of displacement, danger to life, and loss of livelihood that so often accompany conservation interventions in Tanzania to be introduced into *their* village. In the context of an expected increased reliance on land in the future, with concurrent worsening soil and diminishing yields (Bluwstein et al., 2018), and in the absence of a radically new approach to the division of space for people and wildlife in Tanzania – a vision which is not forthcoming based on the data presented in this thesis – it is unsurprising that household survey respondents were opposed to a formally designated wildlife corridor in their village.

Village residents who do not already feel predisposed towards supporting wildlife conservation in their village for affective reasons, as explored in chapter 9, are therefore unlikely to support the Kichangani-Ikungua corridor in its current guise, given that there is no mechanism for deriving tangible benefits for Kichangani or Ikungua villages. Where the desirable visions for corridors at both the national and the sub-national levels envisaged improved and alternative livelihood techniques to facilitate people to leave designated corridor spaces in their ‘natural’ state, this did not materialise at the local level. In this instance, as the corridor touched down and was ‘miniaturised’, to use Scott’s (1998) language, the practical elements that might benefit people were lost while the overall ‘shape’ of the corridor remained. The discursive mobility and scalability of the corridor as discussed in section 10.1.1 above resulted in a local-level corridor project which persists, to a greater or lesser extent, *despite* not delivering tangible benefits to the people who live alongside it. In the classic political ecology concern of the distribution of benefits and burdens, the manifestation of the village level corridor has presented a significant opportunity cost, and no tangible benefit, for those who must live with or alongside the corridor space. The benefits accrue primarily to those who were professionally involved in its creation – and in particular, those who occupied managerial positions within Frontier, and who are now at a personal, professional and literal distance from the corridor itself. .

10.2.1.2 Clarity and coordination

Lack of coordination and a resultant sense of confusion was a theme that arose consistently in primary and secondary data, spanning a period of some 17 years from 2001 to 2018. Frontier's early reports to the Darwin Initiative highlighted poor coordination as a major barrier to reaching the kind of harmonised effort that would undoubtedly be required to restore the Ruipa Corridor in its entirety – regardless of how this would be achieved – given the rapid pace of change already underway, and the presence of a complex matrix of land tenure and land use types throughout the Corridor area. At the district level, there was little evidence of coordination between Kilombero and Ulanga districts. Interviewees who were employed by district councils sometimes reported that there was collaboration between the districts with regards to conservation. However, when pressed, this usually amounted to running the occasional joint patrol⁷⁰. Even within departments of the same district council there was a lack of coordination. Key informants working within councils described how the siloed structure of district council departments meant that departmental officers – e.g. for forests, agriculture, wildlife, town planning, pastoralism – tended to focus on their own areas of expertise to the detriment of other areas (IN25, IN60). There is no existing formal mechanism for ensuring that districts within the same region are obliged or even able to share information; it would appear that this kind of siloed governance structure is deeply embedded within work culture at the district government level. The district government can act as something of a bottleneck in this regard – not because people are careless or unconscientious, but simply because they work in isolation from one another.

Improving horizontal connections between different departments at the level of district government, and between different districts, would therefore be a necessary prerequisite to achieving the kind of coordinated approach necessary for creating any kind of ecological connectivity between the Udzungwa and Selous ecosystems – whatever form this would take. Projects like KILORWEMP, or the corridor activities of Frontier, inject foreign donor funding into the Valley and animate certain aspects of conservation; but without a mechanism for information sharing and coordination of activities on the ground, there is always the risk that

⁷⁰ Patrols were of either the Kilombero GCA or of Iluma WMA – a wildlife management area also falling within the jurisdiction of both Kilombero and Ulanga Districts. In reality, patrols in the GCA were led by TAWA (the authority in charge of Tanzanian GCAs), and patrols in Iluma were infrequent due to lack of funding.

ongoing project activities will simply create more confusion, as they already have done in the Kilombero Valley between e.g. KILORWEMP and LTSP, or (to a lesser extent) KILORWEMP and Frontier.

Creating open spaces of communication is also important at the strategic stage, both before and during the onset of on-the-ground activities. Matulis and Moyer (2017), Peterson et al (2005) and Sandbrook et al (2019, 2011) argue that false consensus in conservation can obfuscate minority viewpoints while presenting a façade of inclusivity, and emphasise that creating space where (even irreconcilable) differences can be expressed and affirmed is key to the development of more effective, and more just, conservation. If, as the data in this study suggest, fundamental questions on the meaning and materiality of the corridor remain unresolved, then creating a space where these questions could be deliberated would encourage professional conservationists to interrogate their own values and assumptions, prompt them to critically reflect on their beliefs about corridors, and perhaps allow for alternative corridor visions – or simply alternative visions – to develop. A suggestion for how this might be done is presented in section 10.2.3.

10.2.1.3 Managing and delivering corridor spaces

The way in which corridor spaces manifest also influences the distribution of benefits and burdens to local people, to wildlife, and to the people who ‘deliver’ the corridor space. Because corridors are linear spaces by definition, they have a higher ‘surface area’, so to speak, than the equivalent area in the more traditional ‘island’ protected area. This means that choices about the scale at which corridor spaces manifest, decisions surrounding the use of hard infrastructure and demarcation, and rules about what kind of activities can and cannot take place within corridor spaces have the potential to be particularly impactful. In the case of the Kichangani-Ikungua corridor, pathways of wildlife movement were narrowed down to a width of 2.5km that happened to fall across the administrative boundary separating two villages. Could similar projects be applied across different villages in Ulanga and Kilombero districts to achieve ecological connectivity between the Selous and Udzungwa ecosystems, via a system of micro-corridors, spreading like capillaries into the Kilombero GCA?

Moving people from one larger swathe of corridor land at scale, to deliver a corridor space in the ways suggested by the *Righteous* and *Instrumental Corridors* perspectives, or collectively imagined by attendees at the regional stakeholder workshop, could well lead to the disruption of fewer people than would replicating the small slivers of connectivity as delivered by Frontier's Kichangani-Ikungua corridor project. However, 'doing' the corridor in this way would require thinking holistically about such a complex set of needs and requirements that a dedicated task force would be required, as well as the mobilisation of significant resources. The scale of impact such an approach would have would require radical honest about how (re)establishing connectivity between the Udzungwa and Selous ecosystems in this way would impact on people. It would also necessitate the involvement of the central government, which would potentially be politically unpalatable. 'Doing' corridors at a smaller scale, with slivers of connectivity like the Kichangani-Ikungua corridor, is potentially more palatable and manageable. Even if they have limited ecological impact, these small 'parcels' of connectivity provide some *semblance* of conservation success for organisations like Frontier which set out to deliver it. As discussed in section 2.2.2, success itself can act as a currency in conservation, suggesting that there is a danger of the proliferation of smaller-scale, less effective but still socially impactful corridor projects on the ground in Tanzania.

10.2.1.4 Lines of communication

The three sections above – 10.2.1.1, 10.2.1.2, 10.2.1.3 – all suggest that poor or limited communication about corridors, between and within various professional and lay stakeholder groups, may have fuelled confusion, stymied strategic creativity, or even exacerbated conflict. It is therefore apposite to consider the ways in which communication about corridors, and indeed conservation more broadly, may be improved. This is particularly crucial at the village level, where the impacts of conservation interventions are most acutely felt. For example, one major finding, discussed in section 9.2.2, was that people living in Kichangani and Ikungua villages actually engage very little with land use planning, and that there is a lack of clarity as to what their rights and responsibilities actually are. People are undoubtedly more than capable of understanding these issues that impact on them in a very real sense. One relatively simple way to address this would be to ensure important announcements are made by loudspeaker from vehicles passing villages, as this was the most frequently cited method of

receiving important village news cited by respondents in the household survey (cited by 175 out of 200 respondents).

This is especially important given that the corridor regulations, as they stand, are vulnerable to being co-opted by 'outsider' organisation in the same way WMAs are. Conservation NGOs and arms of local government alike would do well to focus their efforts on fostering a knowledge and rights-based approach to conservation in communities – and ensuring communities are aware of what those rights and responsibilities are is an important first step. This would help prevent those that are impacted by on-the-ground interventions in significant, tangible ways from perceiving village land use planning or conservation as something that is done 'to' them by faceless monolithic entities of 'the government' or 'TANAPA'.

10.2.2 Uncharismatic landscapes, wicked problems and the aftermath of projects

One has to ask whether there would be the appetite for developing a project connecting the Udzungwa and Selous landscapes given the complexity of the problem at hand, as outlined in both the empirical sections to this chapter, and the practical implications outlined in the sections above. The Kilombero Valley is a particularly complicated place to try to deliver a corridor project at inter-district scale: there are different categories of land and diversity of land uses, which are changing at a rapid pace; there is a perceived scarcity of land for supporting the needs of the people who already live there, and a perception that (some) immigrants are placing unsustainable demands on that land which adds a sensitive social aspect; there is a pervading sense among Valley-based conservation stakeholders that there is a lack of central authority or control over decision-making, and/or that those who hold positions of authority can often be compromised; and unclear or changing boundaries to the system under consideration (or in this case, areas within the system under consideration).

As such, in the context of the Kilombero Valley, issues pertaining to land use and conservation have the hallmarks of a wicked conservation problem, conceived of as a complex *bundle* of problems which are linked to one another and affected by one another, and which are therefore difficult to isolate (Game et al., 2014). Against this incredibly challenging conservation landscape, the corridor for conservation touched down. Corridors enter into this

complex conservation context representing a clear and singular solution to what is, in fact, a wicked problem; or, considered from a different angle, the corridor is a charismatic solution applied to an uncharismatic landscape.

One of the key questions when dealing with wicked problems in conservation is how to respond to changing conditions on the ground. One way in which this could be addressed is through the development of scenarios, as suggested by Game et al (2014). Scenario-building exercises with conservation and planning stakeholders can help address wicked problems by compelling them to think carefully and creatively about possible, if not probable, future outcomes. Even in the absence of more formal and quantified scenario-building exercises, Game et al (2014) recommend posing the simple but essential question: “What information would make you adjust your choices of action, and why?”. We could extend this to ask what changes in on the ground conditions would make you reconsider pursuing corridors as a conservation strategy. The answers to such questions could be discussed and recorded, and used as a resource for strategizing both before and the implementation of connectivity projects. Such questions would reinforce in the minds of conservation planners that the “future is not a static continuation of the past” and that “several potential futures are feasible from any particular point in time” (2009, p. 799). Keeping this in mind would brace conservationists working on corridors that other futures, and other approaches, are possible, helping conservation practice out of its tendency towards path dependency.

10.2.3 Limitations and avenues for further research

It would have enhanced this study to have some insight into the Sukuma perspective on the situation in Kilombero Valley – especially on their attitudes towards conservation and wildlife, and on the push and pull factors that moved them to this part of Tanzania. This was something of a missing puzzle piece, but ultimately not one that I was able to supply, as the more distant, sometimes remote locations of Sukuma settlements outside of designated village settlement areas raised both methodological and risk-related issues. As such, it is important to emphasise that any data related to Sukuma people in this study is a report of the perspectives of others, and categorically not a reflection of my own perspective. The topic of Sukuma immigration is complex and somewhat controversial in the context of the Kilombero Valley, and providing a full insight into the many push and pull factors shaping immigration in Kilombero is beyond

the remit of this thesis. However, further research into Sukuma attitudes would be suited to the expertise of a researcher local to the area, and/or a researcher who is a Sukuma 'insider'. Researchers with these backgrounds and experiences would be well placed to navigate these potentially sensitive topics; my positionality as a white person, whose knowledge of Tanzanian culture will always be that of an observing outsider, makes me less suitable for such research.

Being able to flesh out corridor governance at the level of regional government (i.e. within the administrative region of Morogoro) would have provided a fuller understanding of how the corridor is articulated and perceived at this specific spatial and administrative scale. Only one interview was secured with representatives at this level: with the Regional Natural Resource Officer for Morogoro. Although this thesis has neither attempted nor claimed to have mapped the corridor at all administrative scales – and I would still argue that the most important levels of articulation of the corridor for this thesis were at the village and district levels – a more detailed understanding of how regional government actors orient themselves in relation to corridors would have been informative. Indeed, an understanding of this is something of a missing link for conservation projects in Tanzania more generally. A more detailed exploration of how responsibilities are delegated, and regulations followed up, with a more explicit focus on professional practices themselves, would help to address this gap. This would complement the findings of chapters 6 and 9 especially, which highlight how the composition of teams or the delegation of tasks can hugely impact outcomes on the ground.

10.3 A final word

This thesis constitutes a deep-dive into the spatial imaginary and spatial production of the corridor for conservation. My results show that corridors in Tanzania are not products of the straightforward 'application' of scientific knowledge on ecological connectivity. Rather, corridors in Tanzania can be understood in terms of an assemblage – a confluence of diverse elements, connecting and colliding, sustained by a diffuse and relational power that cannot be explained by a simple exertion of force, application of will, enforcement of policy or observation of 'natural' phenomena.

Corridors in the abstract appeal to human beings' spatial intuition, chiming with well-established notions on both intrinsic and immutable nature and how best to protect it. In

Tanzania, this potent intuitive appeal aligns with an existing conservation and planning complex that is premised on the logic of separating people and 'nature', and which is primed to receive spatial solutions to perceived (anthropogenic) threats to wildlife. As the abstract corridor concept travels through conservation networks, and 'touches down' in a specific locale, it animates elements of this conservation and planning complex, drawing them into the corridor assemblage, leaving traces on Tanzania's conservation landscapes, and further reinforcing the legitimacy of the corridor concept in the minds of key actors. This helps the corridor to 'stick' to landscapes and to linger even in complex social, ecological and political contexts – and even if the reality on the ground no longer supports the logic of the corridor as a conservation strategy.

In chapter 1, I quoted Hobbs' 1992 prediction that interest in corridors would be unlikely to abate "without hard evidence to show that they are definitely ineffective" (1992, p. 391). By highlighting how elements of the corridor assemblage forge connections across different spatial levels and dispersed geographies, "[performing] connections and [linking] bodies and places in multiple spatial, or topological, formations" (Lorimer 2015, p10), I hope that the data presented in this thesis has helped explain the apparent intransigence, or inertia, of the corridor. I emphasise that there is always an ethical and intellectual imperative to interrogating conservation strategies, and to question why and how certain ideas gain momentum and staying power.

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Appendix 1 – List of interviews, observations and workshops

Code	Date	Respondent(s)	Notes
Group interviews			
GI01	15/07/2018	Farmers at Kikwachu	Kikwachu is an area at the edge of the floor of the Kilombero Valley unofficially used for farming, especially by residents of Kichangani
GI02	17/07/2018	Sukuma settlement at 'Kimbili', Ulanga district	
GI03	24/07/2018	Ikungua Village Council	
GI04	24/07/2018	Kichangani Village Council	
GI05	07/06/2018	Ihenga Village Council	
GI06	07/06/2018	Conservationists in Ihenga	
Semi-structured interviews			
IN01	14/02/2018	Consultant for KILORWEMP	
IN02	26/02/2018	VEO and chairman, Kichangani	
IN03	26/02/2018	Sub-village chairman, Kichangani	
IN04	26/02/2018	VEO Ikungua	
IN05	27/02/2018	Traditional healer, Kichangani	
IN06	27/02/2018	VEO and Chairman, Nakafulu village	
IN07	28/02/2018	Chairman, Ikungua	
IN08	28/02/2018	Farmer, Kichangani	"Mr Nyati" - farming and living 'in' the Kichangani-Ikungua Corridor
IN09	06/03/2018	Town and rural planner, LTSP	
IN10	08/03/2018	KILORWEMP consultant	This respondent also participated in Q study (see QI17 in Appendix 2)
IN11	09/03/2018	KILORWEMP consultant	This respondent also participated in Q study (see QI02 in Appendix 2)
IN12	08/04/2018	Former coordinator for Frontier, tourism stakeholder Kilombero	
IN13	23/05/2018	Ward councillor, Mofu ward	This respondent also attended the regional stakeholder workshop
IN14	06/06/2018	District Forest Officer, Kilombero District	
IN15	06/06/2018	Junior Town Planning Officer, Kilombero District	
IN16	07/06/2018	Junior Environmental Officer, Kilombero District	
IN17	09/06/2018	District Wildlife Officer, Kilombero District	This respondent also attended the regional stakeholder workshop
IN18	15/06/2018	Legal Officer, Ministry of Natural Resources and Tourism	
IN19	18/06/2018	Manager, KVTC	
IN19	18/06/2018	Manager, KVTC	

IN20	19/06/2018	Agricultural Officer, Kilombero District Council	
IN21	20/06/2018	Project Manager, Kilombero Game Controlled Area (TAWA)	
IN22	20/06/2018	Wildlife Officer, Kilombero Game Controlled Area (TAWA)	
IN23	21/06/2018	Junior Agricultural Officer, Ulanga District	
IN24	21/06/2018	District Agricultural Officer, Ulanga District	
IN25	21/06/2018	District Wildlife Officer, Ulanga District	
IN26	21/06/2018	District Forest Officer, Ulanga District	This respondent also attended the regional stakeholder workshop
IN27	26/06/2018	Representative from National Land Use Planning Commission	Recording failed
IN28	27/06/2018	Representative, major foreign aid organisation	
IN29	04/07/2018	Village chairman, Kichangani ⁵²	Recording failed
IN30	04/07/2018	Farmer, Kichangani	
IN31	04/07/2018	Corridor supporter from household survey, Kichangani	
IN32	04/07/2018	Corridor objector from household survey, Kichangani	
IN33	04/07/2018	Village council, Ihenga	
IN35	13/07/2018	Health & safety and environmental manager, KVTC	
IN36	15/07/2018	Chairman', Kikwachu	
IN37	15/07/2018	Farmer, Kikwachu	
IN38	15/07/2018	Agro-pastoralist (Sukuma), Kikwachu	
IN39	15/07/2018	Farmer, Kikwachu	
IN40	17/07/2018	Farmer, Kichangani	
IN41	22/07/2018	Visiting research fellow, AWF	
IN42	23/07/2018	KVTC outgrower	
IN43	23/07/2018	KVTC outgrower	
IN44	23/07/2018	KVTC outgrower	
IN45	24/07/2018	Social Manager, KVTC	
IN46	26/07/2018	Members of CBO, Iluma Wildlife Management Area	
IN47	26/07/2018	LTSP, project manager	
IN48	29/07/2018	Former hunting guide	
IN49	30/07/2018	Project Manager, African conservation organisation	
IN50	31/07/2018	Farmer, Ihenga	

IN51	02/08/2018	Scientist, Udzungwa Ecological Monitoring Centre	
IN52	02/08/2018	Park warden, Udzungwa Mountains National Park	
IN53	02/08/2018	Assistant park ecologist, Udzungwa Mountains National Park	
IN54	02/08/2018	Secretary, MANET (network organisation for civil society orgs working on natural resource conservation and environmental issues)	This respondent also participated in Q study (see QI11 in Appendix 2)
IN55	06/08/2018	Senior wildlife researcher, TAWIRI	
IN56	06/08/2018	Senior ecologist, TANAPA	
IN57	07/08/2018	Wildlife researcher, TAWIRI	
IN58	09/08/2018	Former coordinator, KILORWEMP	
IN59	10/08/2018	Representative, sub-project of major conservation organisation	
IN60	10/08/2018	Representative for Ulanga District Council to KILORWEMP	This respondent also attended the regional stakeholder workshop
IN61	12/08/2018	Chief park warden, Udzungwa Mountains National Park	
IN62	15/08/2018	CEO, SAGCOT	
IN63	15/08/2018	Senior staff member, KILORWEMP	
IN64	16/08/2018	Staff member, Tanzania Forest Conservation Group	
IN65	17/08/2018	Two staff members, Ministry of Natural Resources and Tourism	
IN66	18/08/2018	Former manager/owner, trophy hunting outfit in the Kilombero Valley	
IN67	24/08/2018	Director local conservation NGO, Kilombero Valley; my research assistant	This respondent also attended the regional stakeholder workshop
IN68	24/08/2018	Community development officer, African conservation organisation	This respondent also attended the regional stakeholder workshop
IN69	03/09/2018	Regional Natural Resource Officer, Morogoro Region	
IN70	18/09/2018	Representative, Tanzania Hunting Operators Association	
IN71	09/09/2018	Director, African conservation organisation	
IN72	09/04/2019	Former project manager, Frontier	
Observations			
OB01	15/02/2018	KILORWEMP meeting with village leadership and representatives, Iragua, Ulanga District	
OB02	15/02/2018	KILORWEMP meeting with village leadership and representatives, Milola, Ulanga District	
OB03	18/05/2018	KILORWEMP stakeholder workshop, district-level stakeholders for Kilombero District, Ifakara Town	
OB04	21/05/2018	KILORWEMP stakeholder workshop, regional stakeholders, Morogoro City	
OB05	25/06/2018	KILORWEMP final stakeholder workshop/presentation, Dar es Salaam	
Workshops			
WS01	10/07/2018	Invitees from community using contacts from research assistant, Milola village	Pilot workshop only

WS02	11/07/2018	Invitees from household survey, Kichangani village	8 people: two women, 6 men. Aged from late 20s to 75+. No Sukuma people present.
WS03	20/07/2018	Invitees from household survey, Ikungua village	8 people: one woman, 7 men. No Sukuma. Ages mid-30s to 70+. No Sukuma people present.
WS04	21/07/2018	Invitees from household survey, Ikungua village	5 people: no women. Ages late 20s-60+. No Sukuma people present.
SC01	22-23/08/2018	Regional (i.e. Kilombero Valley) conservation and planning stakeholders	<ul style="list-style-type: none"> • Community development officer, African conservation organisation (IN68) • Director local conservation NGO, Kilombero Valley (IN67) • Representative for Ulanga District Council to KILORWEMP (IN60) • District Forest Officer, Ulanga District (IN26) • District Wildlife Officer, Kilombero District (IN17) • Ward councillor, Mofu ward (IN13) • Junior wildlife officer, Ulanga District • Agricultural officer, African conservation organisation • Wildlife officer, Kilombero Game Controlled Area

Appendix 2 – List of Q participants

Number	Sex	Nationality	Professional position	Organisation type	Emphasis	Areas of expertise or educational background	Experience with corridors or connectivity
1	F	Tanzanian	Academic	Academic	Conservation / development	Environmental and natural resource economics; environmental science	Personal/ childhood experiences
2	M	Tanzanian	Academic and consultant	Academic	Conservation / development	Economics; environmental economics	Consultancy work for a mid-sized project, providing baseline information on wildlife- and land management-related issues in districts with multiple corridor projects
3	M	Tanzanian	Academic and consultant	Academic	Conservation	Wildlife management and ecology	Field-based experience collecting data on connectivity between national parks, both in northern Tanzania and coastal Tanzania
4	M	Tanzanian	Practitioner	Parastatal	Conservation	Ecology	Employment with Tanzania Wildlife Authority
5	M	Tanzanian	Practitioner	NGO	Conservation	Technology	Mapping and GIS specialist, global conservation organisation with involvement in several corridor projects in Tanzania
6	M	Non-African	Practitioner	NGO	Conservation	Ecology	Senior management, conservation organisation with links to corridor policy development, corridor research and corridor projects in Tanzania
7	F	Non-African	Management	NGO	Conservation / development	Social science	Senior management, global development organisation with links to corridor policy development in Tanzania
8	M	Tanzanian	Practitioner	NGO	Conservation / development	Wildlife management; natural resource management	Policy advisor, global development organisation with links to corridor policy development in Tanzania
9	M	African	Practitioner	NGO	Conservation	Ecology; biodiversity management	Wildlife expert, global conservation organisation with involvement in corridor projects in Tanzania; post-graduate research in human-wildlife conflict in East Africa
10	M	Tanzanian	Academic	Academic	Conservation / development	Ecology; landscape ecology	Research in landscape ecology including ecological connectivity

11	M	Tanzanian	Management	NGO	Development	Agriculture	Senior management, network organisation of Tanzanian environmental NGOs working in fisheries, forestry and wildlife
12	M	Tanzanian	Practitioner	NGO	Conservation / development	Natural resource management with specialism in forests	Technical specialist, global conservation organisation with involvement in corridor projects in Tanzania
13	M	Tanzanian	Administration	NGO/Civil Society	Conservation / development	Management	Management of a civil society organisation representing managers of community-managed protected areas in Tanzania
14	M	Tanzanian	Management	NGO/Civil Society	Conservation / development	Management	Management of a civil society organisation representing managers of community-managed protected areas in Tanzania
15	M	Tanzanian	Management	NGO	Conservation / development	Agriculture	Providing technical advice to a global conservation NGO, advising on a collaborative project with a major development organisation working on sustainable agriculture and management of natural resources
16	M	African	Management	NGO	Development	Agriculture, management	Work for an initiative 'greening' a Tanzanian infrastructure project, with sub-projects related to wildlife corridors
17	F	Tanzanian	Academic and (consultant)	Academic	Conservation / development	Social science; rural livelihoods	Consultancy work for a mid-sized project, providing baseline information on wildlife- and land management-related issues in districts with multiple corridor projects; PhD research in an area with purported seasonal migration of wild animals between protected areas
18	M	Tanzanian	Practitioner	Parastatal	Conservation	Wildlife management	Senior ecologist, Tanzania National Parks Authority
19	M	Non-African	Practitioner	NGO	Conservation	Ecology; biology	Senior practitioner, global conservation organisation with involvement in monitoring wildlife corridors throughout Tanzania, and projects related to landscape-level connectivity in northern and southern Tanzania
20	M	Non-African	Practitioner (consultant) and independent researcher	Private	Conservation	Ecology	Independent researcher and biodiversity consultant specialising in forest-dependent species
21	F	Tanzanian	Academic	Academic	Conservation / development	Social science	Research on social impacts of protected areas in Tanzania

Appendix 3 – Information sheet for English-speaking participants

Information sheet – PhD research for Annette Green, University of Cambridge, Department of Geography, ag912@cam.ac.uk

My research

I would like to interview you for my PhD research. My research is about conservation and development corridor projects in Kilombero Valley.

How the data will be used

If you consent to be interviewed, the data will be used for my PhD research. It may also be used in published academic papers. It is possible that I will choose to reproduce your exact words in my work.

Your rights

You do not have to take part in this research. You may stop the interview at any time. You may withdraw consent at any time (including after the interview has concluded). There is no personal direct benefit to you or your organisation for partaking in this research.

Issues of anonymity

I will *not* need to use your name in my PhD thesis or any other published or unpublished work. However, it may be important to my research to be able to name the organisation you work for or represent. This means it could be possible to identify you.

Note-taking and audio-recording

I will be taking notes throughout the interview. I will use these notes for my research. Only I will have access to these notes and they will be stored safely, and destroyed within 5 years of completing my PhD.

It would also be helpful for me to be able to audio record this interview. The audio data will be accessed by myself and my research assistant only. It will be stored safely, and the data will be deleted within 5 years of completion of my PhD.

Consent to interview

If you consent to be interviewed, please tick the below box:

- I consent to be interviewed by Annette Green for her PhD research.

Please also select one of the following four **minimum** levels of anonymity:

- I consent to use of my name, job title and organisation (*e.g. Mr Joshua, Sales Manager, Karafuu Supermarket*)
- I consent to use of my job title and organisation (*e.g. Respondent 1, Sales Manager, Karafuu Supermarket*)
- I consent to use of my organisation's name only (*e.g. Respondent 1, mid-level employee, Karafuu Supermarket*)
- I do not consent to use of my name, my job title or my organisation (*e.g. Respondent 1, employee, medium-sized supermarket*)

If you do not consent to my naming your organisation, please let me know so we can further discuss how your data will be represented.

Please select one of the following two options:

- I consent to audio-recording this interview
- I do not consent to audio-recording this interview

Appendix 4 – Information sheet for Swahili-speaking participants

KARATASI YA TAARIFA

Utafiti wangu

Ningependa kufanya mahojiano na wewe kwa ajili ya utafiti wangu wa PhD (shahada ya uzamivu). Utafiti wangu ni kuhusu miradi ya uhifadhi na maendeleo katika ukanda/ushoroba wa bonde la Kilombero. Shauku yangu kubwa hasa, ni jinsi miradi hii tofauti inavyoingiliana kila mmoja.

Namna data zitakavyotumika

- Ikiwa unakubali kuhojiwa, data zitatumika katika utafiti wangu wa PhD
- Pia zinaweza kutumika katika machapisho ya kitaaluma

Haki zako

- Silazima kwako kushiriki katika utafiti huu
- Unaweza kukatisha mahojiano wakati wowote
- Unaweza kuondoa idhini wakati wowote (ikiwa ni pamoja na baada ya mahojiano kumalizika)
- Hakuna faida kwako au shirika lako katika kushiriki utafiti huu

Masuala ya kutokujulikana

Nitajaribu iwezekanavyo kuhakikisha mshiriki hajulikani.

Sintohitaji kutumia jina lako katika hoja yangu ya PhD au kazi yoyote iliyochapishwa au isiyochapishwa. Hata hivyo, yaweza kuwa muhimu kwa utafiti wangu kuwa na uwezo wa kutaja shirika unalofanya kazi au unaloliwakilisha na hii ina maana inawezekana kukutambua wewe - kwa mfano, ikiwa shirika lako ni dogo sana.

Kuchukua kumbukumbu na kurekodi sauti

Nitakuwa nikichukua maelezo wakati wote wa mahojiano na nitatumia maelezo haya kwa utafiti wangu. Mimi pekee nitakuwa na uwezo wa kuzipitia data hizi na zitahifadhiwa salama.

Pia itakuwa ni msaada kwangu kuweza kurekodi sauti ya mahojiano haya na data za sauti iliyorekodiwa itaweza kufikiwa na mimi mwenyewe na msaidizi wangu wa utafiti tu.

Data hizo zitahifadhiwa salama, na zitafutwa ndani ya miaka 5 ya kukamilika kwa PhD yangu.

Kukubali kuhojiwa

Ikiwa unakubali kuhojiwa, tafadhali weka alama ya tiki kwenye kisanduku hapo chini:

- Ninakubali kuhojiwa na Annette Green kwa ajili utafiti wake wa PhD.

Tafadhali chagua moja ya chaguzi mbili zifuatazo:

- Ninakubali kurekodi mahojiano haya
- Sikubali kurekodi mahojiano haya

Appendix 5 – Household survey

READ OUT THE INTRODUCTION AND CONSENT STATEMENT

TICK TO CONFIRM YOU HAVE READ THE INTRODUCTION AND CONSENT STATEMENT TO THE RESPONDENT

PLEASE TICK TO CONFIRM THE RESPONDENT HAS UNDERSTOOD

PLEASE TICK TO CONFIRM THE RESPONDENT HAS AGREED TO TAKE PART

All three boxes must be ticked for the interview to continue

PRELIMINARY INFORMATION

Researcher..... Date: Time: VillageSurvey number

GPS coordinates: Waypoint number:

*******SURVEY BEGINS*******

1. Age of respondent
2. Male or female (M or F)
3. How long has respondent lived in the village (nearest year OR which president was in power)
4. Household description:
 - a. Roof: Iron sheet / grass / plastic / tiles
 - b. Walls: Brick / mud
 - c. Power: yes / no
5. **Wewe ni mkuu wa nyumba?** Yes No
6. **Kuna watu wangapi kwa ujumla nyumbani kwenu?**
7. **Ningependa kujua zaidi kuhusu shughuli za kimaisha za hapa nyumbani** (I would like to know more about your household's livelihood activities)

[MEMBER NUMBER]	Umri	Jinsia	Relation to the respondent <u>or</u> other household members if more than one family	Shughuli kuu ya kimaisha (unapotumia muda mwingi kilasiku) – for example farming, small business, school etc	Kabila	Mahali ulipozaliwa
1 (respondent)			////////////////////			

8. Ningependa kujua zaidi kuhusu shughuli zako za kilimo na mazao mnayolima nyumbani na shambani kwenu

Crop	For food	For business
a) Rice		
b) Maize		
c) Sesames		
d) Millet		
e) Groundnuts		
f) Tomatoes		
g) Pumpkins		
h) Green vegetables		
i) Onions		
j) Sweet potatoes		
k) Cassava		
l) Ndizi		
m) Other		
n) Other		
o) Other		

9. Nishughuli gani nyingine za kimaisha unazofanya nyumbani kwako (tick all that apply) (Which other livelihoods activities are carried out in your household):

Livestock keeping Fishing Small business Piki-piki or bajajidriver Professional job (e.g. teacher, nurse)
 Occasional work (e.g. building, farming for someone else) Other? Please name

10. Nyumbani kwako unamiliki vifuatavyo: Bicycle Motorbike Car Radio Television Tractor Cattle plough
 Phone Chickens (How many) Goats (How many) Cows (How many) Other livestock (please name and state how many

11. **Kwa maoni yako, ni shughuli ipi ni muhimu zaidi ambayo inakidhi mahitaji ya kila siku nyumbani?** (In your opinion, which livelihood activity is most important for meeting the day-to-day needs of your household – for example which activity makes the biggest contribution)
 Most important: **Muhimu sana** Second most important: **Inayofuatia**

12.

a. **Familia yako inafahamu msitu amba outapata malighafi? Kwa mfano mkaa, mbao, dawa, matunda, uyoga, nyamapori au vituv ingine?** (Does your household have access to a forest that you can take resources from? For example fuel, timber, medicine, fruit, mushrooms, bush meat or other things?)
 Yes No

b. **Kama ndio, tafadhali tuambie jina la msitu na malighafi unazopata** (Please tell us the name of the forest, the things you take)

c. **Kama ndio, ni mara ngapi unaenda msituni kukusanya malighafi hizo?** (How often do you usually enter the forest to take resources? For example per week, per month, per year?)

13. **ARE YOU A MEMBER OF VILLAGE LEADERSHIP OR VILLAGE COUNCIL?**
 VILLAGE LEADERSHIP VILLAGE COUNCIL NEITHER

14. **Unapataje habari za muhimu kuhusu kijiji?** How do you hear about important VILLAGE NEWS (ANY VILLAGE NEWS AT ALL)
 Village meeting Village notice board Radio Talking to village leaders personally Newspaper
 Speaker announcement from village leaders Talking to friends, family and neighbours Other Please name

15. Ulishawahi kuiona ramani ya mpango wa sasa wa matumizi bora ya ardhi ya kijiji chako? (Have you ever seen a map of your village's current VLUP?)
 Yes No

16.

- a. Ulishawahi kuhudhuria mkutano wa kijiji unaohusu mpango matumizi bora ya ardhi ya kijiji chako? (Have you ever attended a village assembly about your village's VLUP?) Yes No
- b. IF YES, WHEN WAS THE LAST TIME YOU ATTENDED A VILLAGE ASSEMBLY ABOUT THE VILLAGE LAND USE PLAN?
-

17.

- a. Has anyone else in your household ever attended a village assembly about your village's VLUP?
 Yes No
- b. If yes, who?

18. Ningependa kujua maoni yako kuhusu maisha ya kijijini kwako na nyumbani kwako. Nitasoma maelezo Fulani na ningependa kujua kwamba unakubali au haukubali (I would like to find out about your opinions about life in your village and your household. I will read out some statements, and I would like to know whether you agree or disagree with the statement) [REMEMBER TO READ OUT ALL AVAILABLE AGREE/DISAGREE OPTIONS TO RESPONDENT]

	STATEMENT	Nakubali kabisa	Nakubali kidogo	Sina maoni	Sikubali kidogo	Sikubali kabisa
Example	[EXAMPLE] Eating mangoes is very important for my health	/	/	/	/	/
A	Kijiji change kikubwa cha kutosha mahitaji ya watu wote wanaoishi hapa kwa sasa My village is big enough to accommodate the needs of all the people living in it right now Notes (OPTIONAL)					
B	Ningependa kijiji change kiwe na eneo kubwa la kilimo kwenye mpango wa matumizi bora ya ardhi I would prefer my village to have more land for farming in the VLUP Notes (OPTIONAL)					
C	Ningependa kijiji change kiwe na eneo kubwa la malisho katika mpango wa matumizi bora ya ardhi I would prefer my village to have more land for grazing in the VLUP					

	Notes (OPTIONAL)					
D	Boko ni tatizo kubwa kwangu na familia yangu Hippos are a big problem for me and my household Notes (OPTIONAL)					
E	Wanyama wakubwa wengine ni tatizo kubwa (tembo, nyati, nguruwe pori, swala) kwangu na familia yangu Other large wild animals (like elephant, buffalo, bush pigs and antelopes) are a big problem for me and my household Notes (OPTIONAL)					
F	Mipaka ya maeneo ya hifadhi ina alama zinazoonekana katika kijiji changu Boundaries of protected areas are clearly marked in my village Notes (OPTIONAL)					
G	Kuhifadhi wanyamapori ni muhimu kwa Tanzania Protecting wild animals is important to Tanzania Notes (OPTIONAL)					
H	Kuhifadhi wanyama pori ni muhimu katika kijiji changu Protecting wild animals is important in my village Notes (OPTIONAL)					
		Nakubali kabisa	Nakubali kidogo	Sina maoni	Sikubali kidogo	Sikubali kabisa
I	Wanyama pori wanaleta faida kijijini kwangu KWA SASA Wild animals bring benefit to my village RIGHT NOW Notes (OPTIONAL)					
J	Naamini inawezekana kijiji changu kunufaikana uwepo wa wanyama pori kwenye eneo hili IN THE FUTURE I believe it is possible for my village to benefit from the presence of wild animals in this area IN THE FUTURE Notes (OPTIONAL)					

19. Please tell us the last time you saw, heard, or heard about the following wild animals being in this village, NEAR TO THIS VILLAGE OR AT YOUR SHAMBA:

- Elephant
 - Buffalo
 - Hippo
 - Puku
 - Other antelope
 - Bush pig
 - Lion
 - Leopard
-

[KICHANGANI ONLY]

20.

a. Unafhamu kwamba kuna eneo la mapito ya wanyama pori kwenye mpango wa matumizi bora ya ardhi ya kijiji chako? (Are you aware that there is wildlife corridor land in your village land use plan?)

Yes No

b. Kama ndio unafhamu mapito ya wanyama pori yako wapi? (If yes, do you know where the corridor land is?)

Yes No

[NOW GO TO QUESTION 21]

[CONTINUE FROM HERE FOR ALL VILLAGES]

21.

a. Kuna mtu yeyote alishawahi kuongea kuhusu mapito ya wanyamapori kwenye mkutano wa kijiji uliowahi kuhudhuria? (Has anyone ever spoken about wildlife corridors at a village meeting you have attended?)

Yes No

b. Kama ndio, tuambie ni nani? If yes, please tell us WHO and WHEN [IF RESPONDENT CANNOT NAME, ASK FOR DESCRIPTION. SEE RESEARCHER NOTES]:

.....

.....

.....

22.

a. **Kuna mtu yeyote alishawahi kuongea na wewe mkiwa wawili kuhusu mapito ya wanyama pori OUTSIDE OF A VILLAGE MEETING?** (Has anyone ever spoken to you personally outside of a village meeting about wildlife corridors?)

Yes No

b. **Kama ndio, tuambie ni nani?** If yes, please tell us who and when [IF RESPONDENT CANNOT NAME, ASK FOR DESCRIPTION. SEE RESEARCHER NOTES]:

.....
.....
.....

23.

a. **Ulishawahi kusikia mapito ya wanyama pori ya kitajwa kwenye redio?** (Have you ever heard wildlife corridors being mentioned on the radio?)

Yes No

b. **Kama ndio, tueleze zaidi** (lini, rediogani, nani aliyekuwa anaongelea na kadhalika)(If yes, please tell us more (when, which station, who was speaking etc.):

.....
.....
.....

24.

a. **Ulishawahi kusikia mapito ya wanyamapori yanatajwa sehemu nyingine yeyote?** (Magazeti, luninga, mikutano mingine, nje ya kijiji chako, popote pale) Have you ever heard wildlife corridors being mentioned elsewhere? (Newspapers, television, other meetings, outside your village, anywhere at all?)

Yes No

b. **Kama ndio, tueleze zaidi (lini, wapi, niniulichosikia)?** If yes, tell us more here (when, where, what did you hear?):

.....
.....
.....

25. **Je, wewe ungependa kijiji chako kiwe na mapito ya wanyamapori katika mpango wa matumizi bora ya ardhi yatakayofuata?** [READ OUT THE BELOW OPTIONS OF YES, NO, DON'T CARE OR DON'T KNOW] (Do you want your village to have wildlife corridor land in the next village land-use plan?)

Yes No Don't care Don't know

[ASK THE RESPONDENT TO EXPLAIN THEIR ANSWER A BIT, INCLUDING IF THEY RESPONDED 'DON'T KNOW' or 'DON'T CARE'. SEE RESEARCHER NOTES]

.....

26. Nilipenda kujifunza Zaidi kuhusu nini cha muhimu kwako na nyumbani kwako. Nitasoma vitu vitano tofauti na ningependa wewe unieleze kipikinasaidia Zaidi kwako na nyumbani kwako (I would like to learn more about what is important to you and your household. I will read out a list of five different things, and I would like you to explain to me which things would be most helpful to you and your household)

	THING	RANK [WRITE NUMBER HERE – 1, 2, 3, 4, 5]
a	Hati miliki ya ardhi unayomiliki au unayoitumia sasa (A CCRO for the land you currently own or use)	
b	Mapato ya kijijini yanayokidhimgawanyona mahitaji (A social fund to meet your villages shared needs)	
c	Kuwa na ardhi Zaidi kwa mahitaji ya nyumbani kwako (Access to more land for your household)	
e	Kuwa na msitu mzuri na wa matumizi ambao unaweza kukusanya mahitaji muhimu ya nyumbani kwako (Access to a healthy and useable forest that you can collect resources from for your household)	
F	Kilimo cha umwagiliaji wa kisasa kijijini kwako (A modern irrigation system for your village’s farmland)	

27. Je, kuna ushauri (au maoni) wowote ungependa kuelezea kwetu? (Is there any other comment you would like to make to us)

28. [PLEASE ASK THE RESPONDENT WHETHER THEY WOULD BE WILLING TO DO A LONGER INTERVIEW (ONE HOUR OR LESS) AND/OR ATTEND A VILLAGE WORKSHOP (HALF-DAY WITH LUNCH) IN MAY/JUNE THIS YEAR?]

- a. One-hour interview: Yes No
- b. Half-day workshop with lunch: Yes No

c. [IF YES TO EITHER, PLEASE TAKE THE PARTICIPANT’S PHONE NUMBER:]

*****END OF SURVEY *****SAY THANK YOU*****

WRAPPING UP NOTES

Survey end time:

If this was a **particularly interesting** participant to include in an interview or focus group, **please tick this box**

And please make a short note on why they were interesting, e.g. 'Respondent very enthusiastic about conservation in the village', 'Respondent dislikes wildlife corridors very much', 'Respondent says there used to be a great forest but now it's degraded' etc.

.....
.....

Any difficulties? E.g. many interruptions, angry respondent

.....
.....

Appendix 6 – Household survey information, sampling guidance, and consent statement for research assistants

General instructions

Before survey begins

- You **MUST** read out the information and consent sheet at the beginning of EVERY survey
- All three tick-boxes MUST be ticked in order for you to begin the survey
- If you are not confident that the respondent has understood the information and consent sheet, please do not continue with the survey
- Don't forget to fill in all the preliminary information – researcher name, date, time, GPS coordinates etc.

During survey

- Any questions that are not applicable, please put a line ~~like this~~ through the question number, so I know that this question is not applicable
- If respondent seems to be upset, or you can see they want to stop the survey, offer to stop. Do not force them to carry on
- It is very likely that other people (family members, neighbours) will be present during surveys. Try to administer the survey to one primary respondent as much as possible – address questions specifically to the primary respondent if necessary.

After survey

- Questions 28a, 28b and 28c – Ask the respondent whether they'd be interested in attending a longer interview or workshop. Use your judgement – if you can see the respondent does not want to, tell them it doesn't matter. Do not pressure a respondent to say yes. Do not pressure a respondent to give us a phone number, even if they said yes to questions 28a or 28b
- Don't forget to fill in the WRAPPING UP NOTES

Have fun and use your judgement – if you have any questions or doubts let me know during meetings!

THANK YOU!!!!

Sampling strategy

Start from a border of the settlement area of the selected sub-village. Ensure that the SVC has a good idea of where all the houses are. Ask him to imagine a route walking through the sub-village that goes past all the houses. Explain that you want to stop at every n^{th} house along this route. We will aim to survey 10% of the houses, so the number 'n' will be calculated depending on the number of houses within the sub-village – e.g. if the sub-village has 200 houses we will stop at every 10th house until we have surveyed 20 houses.

If you come across a house which is unsuitable for survey (house destroyed, totally unoccupied etc.), record the GPS coordinates and waypoint ID in the information sheet, so you know not to try there again.

If you come across a house where no one is home at that time, record the GPS coordinates and the waypoint ID on your information table, and whether this is your first, second or third attempt at this house. Go to the 10th house after that.

The maximum number of attempts at any house is three. If you have tried three times on one day, then you stop attempting that house and choose the house closest to that one.

You must record GPS coordinates and waypoints for every house you approach, regardless of whether you completed a survey there or not. This allows you to keep track of which houses you have approached, and whether you will try again.

RESEARCHER NOTES

Do you have

Survey copies?

Pencil?

GPS with batteries?

Introduction and consent statement

I am working for a student from the UK who is doing PhD research on conservation and development projects in this district. If you agree to take part in this survey, the information you provide will be used as part of the student's research. All information you provide is anonymous. It will not be possible to use the information you give us to identify you personally. You do not have to take part in this survey, and you can stop at any time.. If you agree to take part in the survey, I will ask you questions on for example your daily activities in the village, and also for your opinions on things like village land use plans, wild animals, and what you think household needs. Please note that this research is private for an independent researcher, and not part of a project.

Ninafanyakazi ya mwanafunzi kutoka uingereza ambaye anafanya utafiti wake kuhusu uhifadhi wa mazingira na miradi yamaendeleo ya jamii katika wilaya hii. Kama utakuwa tayari kutoa ushirikiano katika utafiti huu, taarifa utakazotoa zitatumika kama sehemu ya utafiti wa mwanafunzi huyu. Taarifa utakazotoa hazitakutambulisha. Hatutahitaji kujua jina lako. Kama utaona hauridhishwi na utafiti huu, unaweza kuacha kutoa ushirikiano muda wowote. Kama utakubali kutoa ushirikiano huu, nitakuuliza maswali kuhusu kwa mfano, kazi zako za kila siku kijijini, na pia maoni yako kwa vitu kama vile mpango wa matumizi bora ya ardhi, wanyama pori, na nini unafikiri mahitaji ya nyumbani. Tafadhali, elewa kwamba huu utafiti ni binafsi kwa mtafiti huru na sio sehemu ya mradi.

Appendix 7 – List of documents informing context

Documents are grouped by source.

Government of Tanzania

- Wildlife Policy for Tanzania (1998)
- Land Act (1999)
- Village Land Act (1999)
- Wildlife Conservation Act (2009)
- Subsidiary legislation: The wildlife Conservation (Wildlife Corridors, Dispersal Areas, Buffer Zones and Migratory Routes) Regulations, 2018

Frontier

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Appendix 8 – Table of rotated factor loadings identifying defining Q-sorts

Participant	Loading F1	Loading F2	Loading F3
QI01	0.6665*	0.0214	0.4022
QI02	0.6508*	-0.0365	0.2042
QI03	0.6416*	0.2417	0.3522
QI04	0.6608*	0.0888	0.5765
QI05	0.4612*	0.0015	0.3189
QI06	0.5174	0.0071	0.5474*
QI07	0.4321	0.3081	0.3461
QI08	0.2402	0.0490	0.7007*
QI09	0.2880	-0.0711	0.6032*
QI10	0.7536*	-0.2338	0.4309
QI11	0.7285*	-0.1199	0.0456
QI12	-0.0584	0.6382*	0.1638
QI13	0.5627*	0.3007	0.2942
QI14	0.2738	0.0249	0.5626*
QI15	0.5613	-0.1914	0.5408
QI16	0.4793*	0.2245	0.3953
QI17	0.2917	0.2789	0.6959*
QI18	0.5282*	0.0047	0.2615
QI19	0.1676	0.1804	0.6247*
QI20	0.5040*	0.3031	0.3965
QI21	-0.0822	0.5962*	-0.0471
Variance explained	25%	7%	20%
Eigenvalues	5.25	1.47	4.2

* = defining Q-sort