

**An Assessment of the Significance of Sacred Forest Status in
Maintaining Forest Condition and Integrity:
a Biocultural Perspective**

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RHODES UNIVERSITY
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Abstract

Many sacred natural sites (SNS), including sacred forests (SFs), play an important role in biological conservation because religious beliefs associated with these sites have been instrumental in the protection of rare and endangered species, habitats and ecosystem services. Sacred natural sites are protected based on customary laws, e.g., restricted access and use, and codes of conduct. Sacred natural sites also conserve the cultural and spiritual identities and heritage of local communities as they are considered places of symbolic manifestations of cultural beliefs and traditions, and often contain cultural products or resources from which cultural artifacts are created. These sites allude to the important relationship locals share with nature in the belief of the divine or sacred in nature where deities or ancestral spirits reside, and where healing is found. In this way, SNS preserve community cultural values, heritage and history as part of the cultural landscape and serve as historical archives.

Although some SNS form part of and are respected by local communities, and many have existed for long periods, SNS are not primarily conservation areas. Instead, SNS exist to fulfil sociocultural and spiritual needs within communities. As such, some SNS are not necessarily undisturbed and the traditional institutions managing these sites are not fixed entities. Indeed, SNS and the communities that govern and use them have been subjected to political, socioeconomic and cultural influences. Consequently, some SNS face serious threats and many have even disappeared. In some instances, they continue to offer opportunities for biodiversity conservation. Although the significance of some of these sites are often undervalued and overlooked by the state, conservation agencies, policies and laws, there has been a renewed interest in SNS as Other Effective Area-Based Conservation Measures (OECMs) for their successful preservation of both nature and culture. This study aimed to determine whether two SFs serve as a tool for promoting biodiversity conservation whilst underpinning the integrity of local cultural heritage. Therefore, the study examines the cultural identities of local communities, their beliefs, practices, and customs for the conservation of the biological diversity of the SFs.

The study adopted a biocultural approach to examine the role of traditional ecological knowledge (TEK), traditional cultural beliefs and values, and indigenous institutions in relation to the integrity and condition of two SFs in Mazizini and Mabasa, in KwaZulu-Natal. Given South Africa's political history, the biocultural approach is relevant in understanding the direct and indirect drivers of change that have altered human behaviour, cultural and spiritual values and beliefs of the sacred in nature and allows assessment of the consequences of these changes. A biocultural framing recognises place-based relationships and enduring social-ecological systems that are based on local priorities, indigenous knowledge and traditional methods to address biological and cultural diversity concerns parallel to the dynamic nature of culture, and how natural resources are used and conserved. The biocultural approach allows an understanding of the position local communities play in their agency towards conserving nature as custodians of their spiritual landscapes. Thus,

the approach offers an opportunity to understand the link between the importance of indigenous people, their TEK and their ancestral manifestations in nature in stewarding biodiversity.

This study sought to recognise and include biocultural heritage and biophysical components that are interdependent in social-ecological systems, as a unique form of OECM. To examine cultural and social-ecological relationships with SFs and how these relationships impact their integrity, quantitative and qualitative methods were employed. Quantitative methods included ecological field surveys and time-series analysis (of repeat measurements of spectral, temporal and spatial data) using Geographical Information System and remote sensing to determine the current ecological condition and integrity of the SFs and how it has changed over the recent past. Qualitative methods included key informant interviews, participatory rural appraisal techniques, oral histories, document analysis and scenario workshops to understand local perceptions and values of the SFs, the role of the community in preserving the SFs, complex causalities and change trajectories of the biocultural systems, i.e., integrated systems of cultural heritage and biological diversity that interact with one another, and emerging pathways by making sense of the future. Given the mixed-methodological approach and the study's interdisciplinary nature, triangulation across methods and findings was applied to better understand the belief in ancestral 'power', the significance of traditional authorities, the legacy of traditional cultural practices, anthropogenic influences, ecological condition and ecosystem services.

Over the last three centuries, many indigenous communities have experienced various changes broadly related to imperialism, modernisation, institutionalised religions and globalisation which include demographic changes and the erosion of traditional beliefs that have threatened or destroyed many SFs. Some communities are still able to retain their indigenous beliefs and cultural heritage which serve as effective controls in protecting SFs. This study found that the communities of Mabasa and Mazizini have become fragmented within the broader South African political and socioeconomic context. Via the qualitative methods, various historical, and socio-political forces were identified as impinging on the cultural beliefs, values and practices of the local communities. This has undermined the very foundation of the integrity of the sacredness of the forest, particularly in Mabasa which was greatly influenced by missionary practices introduced in the 1920s. Through the in-depth qualitative analysis, the influences of the different political eras these communities have experienced over decades were considered, including the local indigenous history. The Colonial era appears to have had a significant impact on local Zulu belief in the veneration of ancestors, whereas the relevance of traditional governance was systematically undermined during the Apartheid era. Both of these have contributed to the decline in cultural practices and values associated with the SFs, compromising the traditional and 'spiritual' custodianship of the forests. These have been further exacerbated by some unintended consequences of ideologies and policies adopted by the elected democratic government in 1994. The physical landscape difference between the two sites plays a role in this dynamic. The SF, known as the *Hlathi lama Khosi*, is located on the sacred mountain in Mazizini, where its sacred significance is maintained through taboos and restricted access to the SF. However, sociopolitical changes over the years have undermined the biocultural integrity of the community's relationship with the site, as evident by the

exploitative use of the culturally significant Nhlinkomo forest, which is also meant to be restricted from access and use. Despite the restrictions placed on both forests, permission was given to survey the Nhlinkomo forest, whilst the *Hlathi lama Khosi* remained restricted to only the royal family. The quantitative data indicated that the ecological integrity of the sacred Funjwa forest in Mabasa and the culturally significant Nhlinkomo forest were not significantly different as compared to adjacent non-sacred forests, whilst the restricted access to the *Hlathi lama Khosi*, due to the practice of customary secrecy, has made its ecological condition impossible to assess. Both SFs revealed a high biological diversity and display population stability, but this may be threatened if unsustainable practices and levels of harvesting are not curbed, given that some of the already endangered or vulnerable species are under threat. Resource acquisition changes, the influence of mainstream Western religions has increased fundamentalism and religious conversion, the loss of TEK and youth apathy towards nature illustrate how biocultural relations within communities have affected.

It is, therefore, vital to understand local perceptions and values of nature, changes in environmental strategies, and the role of the community in preserving the biological diversity of SFs. The results from this study will be useful to local authorities to develop specific forest management strategies for OECMs, which requires a plural approach to the conservation of SFs that incorporates multiple values. While the methodology used in this study may not be conducive to supporting all national and subnational forest monitoring systems, it provides valuable insights into incorporating diverse, multi-dimensional perspectives spanning the natural, human and spiritual, that can assist in developing context-specific conservation strategies. Lastly, given that the approach adopted in this study is not yet widely recognised, this study provides insights into how the interrelationships between ecological and cultural diversity at the local level can be approached. The inclusion of various stakeholders and the merit of scenario workshops helped the gaps between the different constituencies and has provided the space to develop agreed upon longer-term plans for the SFs.

Dedication

This thesis is dedicated to my beloved mother, Naseera Rajak, who gave me strength and encouragement throughout my academic journey, and to my dearest sister, Nadia Rajak, who believed in me and reminded me that I am capable of achieving more than the doubts and fears that arise.



Nadia Rajak

(1990- 2021)

Declaration

I, Sauleha Rajak, hereby declare that this thesis is my own work unless otherwise stated. It is submitted for the degree of Doctor of Philosophy (PhD) in Environmental Science at Rhodes University. This research was conducted in the Department of Environmental Science under the supervision of Distinguished Professor Charlie Shackleton, with co-supervision by Professor Michelle Cocks and Professor Alta de Vos. The thesis has not been submitted to a University other than Rhodes University, Grahamstown, South Africa.

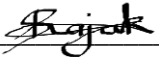
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Plagiarism Statement

I, Sauleha Rajak, hereby declare that, to the best of my ability, all sources used and quoted have been carefully acknowledged. I am aware of the university policy and implications regarding plagiarism, and I hereby declare that:

1. The research presented in this thesis is primarily my own work, except where I have clearly indicated otherwise.
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Signed: 

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Key Terms

Sacred forests, biocultural diversity, ecological integrity, biodiversity, cultural heritage, conservation, traditional governance, cultural beliefs, relational values, traditional ecological knowledge, traditional healers, overharvesting of resources, colonialism, missionary influence, apartheid, democracy, socio-economic development, stewardship and OECMs

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Acronyms

- ArcGIS- Aeronautical Reconnaissance Coverage Geographic Information System
- CBD- Convention on Biological Diversity
- DFFE- Department of Forestry, Fisheries and the Environment
- ES- Ecosystem Services
- GIS- Geographic Information System
- ICCA- International Congress and Convention Association
- ICCA- Indigenous and Community Conserved Area
- IPBES- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
- IPLCs- Indigenous People and Local Communities
- IDP- Integrated Development Programme
- IUCN- International Union on Conservation of Nature
- KD- Kernel Density
- KZN- KwaZulu-Natal
- LULC- Land Use and Land Cover
- NTFP- Non-Timber Forest Product
- OECS- Other Effective Area-Based Conservation Measures
- PACAs- Protected and Conservation Areas (PACAs)

PAs- Protected Areas

PM- Participatory Mapping

PRA- Participatory Rural Appraisal

GGIS- Quantum Geographic Information System

RDP- Reconstruction and Development Programme

RS- Remote Sensing

SANBI- South African Biodiversity Institute

SF- Sacred Forest

SNS- Sacred Natural Site

TA- Traditional Authority

TEK- Traditional Ecological Knowledge

UN- United Nations

UNESCO- United Nations Educational, Scientific and Cultural Organization

VHR- Very High Resolution

WIFM- Woodlands and Indigenous Forest Management

WWF- World Wide Fund

Part 1: Introduction and Background

Chapter 1: Exploring sacred forests and their biocultural significance

1. Introduction: the connections between people and nature in sacred natural sites

Cultural perspectives shape how nature is perceived and the relationships that communities develop with their natural environments. In many communities, natural sites have been recognised as sacred due to their deep cultural and spiritual importance (Pradhan and Ormsby, 2020; Govigli *et al.*, 2021). Sacred natural sites (SNS) are social-ecological systems of natural spaces such as forests, mountains, waterfalls, etc., to which sacred significance is attributed as a manifestation of spiritual values (Pradhan and Ormsby, 2020; Govigli *et al.*, 2021; Roux *et al.*, 2022). Spiritual values are defined by Roux *et al.* (2022) as the “subjective significance” that individuals and communities attach to their experience with the unseen, intangible or spiritual rooted in their beliefs, feelings, identity, and cultural heritage with nature (Roux *et al.*, 2022: 2). As such, SNS are often places of worship, associated with sacred histories or burial grounds, or are culturally living places for deities and spirits. This study specifically examines sacred forests (SFs), also known as sacred groves, which exist on all continents except Antarctica, with the highest concentration of them in India (Pradhan and Ormsby, 2020). Sacred forests are often located in biodiverse rich areas in indigenous communities. These communities are not only guardians of these biologically diverse landscapes, but are also holders of valuable knowledge passed down through generations, including their interactions with nature, viz. experimentation or observation pertaining to medicinal plants, animal habits, seasonality, crop varieties, etc. (Brosius *et al.*, 2010).

Given the sacredness attributed to SFs, there are often established rules, traditional laws, cultural customs and taboos related to their use. These sites are often protected and managed by a community and are kept relatively undisturbed as an “expression of the important relationship to the divine or nature” (Pandey and Rao, 2002: 4). A similar view that the protection of SFs is based on social norms such as spiritual values or community rules was shared by Pradhan and Ormsby (2020). For example, the Dedungri SF in Rajasthan, India, is protected solely by the community and the felling of trees is prohibited, whilst other forest resource uses such as fuelwood and non-timber forest products (NTFPs) are permitted (Pradhan and Ormsby, 2020). However, not all SFs enforce strict prohibitions. Some SFs permit use solely for traditional cultural purposes (Anwana *et al.*, 2012; Nganso *et al.*, 2012; van Andel, 2012), whilst others permit locals to use the forest for their basic needs and livelihoods (Shengii, 2012; Ballullaya *et al.*, 2019). Sacred forests are thus regulated and protected based on a devotional premise (dedication, obedience and veneration to ancestral spirits or deities), a functional premise (managing the ecosystem for sustainable resource use and conservation purposes) (Govigli *et al.*, 2021), or pragmatic use (preserving resource use for times of need or scarcity (Lawes *et al.*, 2007; Kalaba *et al.*, 2013).

Sacred forests are considered a form of biocultural conservation, which integrates the ecological aspects and the cultural significance of the landscape (Pradhan and Ormsby, 2020). This type of conservation is founded in traditional forms of protection, based on cultural reasons (Ormsby, 2013) and spiritual values (Pradhan and Ormsby, 2020), rather than for purely ecological reasons. Although SFs serve cultural, aesthetic and spiritual purposes, and are considered as a form of biocultural conservation, the influences of modernism, urbanisation,

population growth and fundamentalism have threatened some SFs (Brosius *et al.*, 2010). In some settings, these influences have often eroded indigenous beliefs, spiritual values and other non-spiritual traditional links to nature (Ihemezie *et al.*, 2023). The erosion of traditional practices, customs and knowledge, that once supported the conservation of these SFs (Udeagha *et al.*, 2013), have resulted in the broader set of cultural and spiritual values being compromised and, in some instances, being lost. Weakened communal bonds presently pose a threat to both the cultural and ecological integrity of many SFs. In this study, cultural integrity is defined as the preservation, reverence and dignity of indigenous peoples' cultural identity and heritage, including their cultural practices, beliefs and values that are upheld. This definition is developed based on the United Nations Declaration on the Rights of Indigenous People (UNDRIP) articles related to the protection of the cultural integrity of indigenous peoples and traditional local communities (Gargett, 2013). Ecological integrity is defined as the combination of biological diversity, structural condition and ecosystem processes of “an area at a given point in time” with inherent or natural changes that occur within social-ecological systems (Bridgewater *et al.*, 2014: 61). Although the term is commonly used, there is no societal or scientific consensus on how it is defined. It is used in this study to interpret and understand links to local stewardship and management of the SFs (Bridgewater *et al.*, 2014), and to understand the expected variation in response to changes (Karr *et al.*, 2022). Apart from the imminent threats to the cultural significance of such communities and SFs, recent studies have shown that some SFs also face various existential and environmental threats such as over-exploitation, land conversion, degradation, invasive alien species, climate change, drought, etc. (Ihemezie *et al.*, 2023). Despite these, SFs still exist and their biocultural associations, i.e. the relationships and interactions with biological diversity that are deeply influenced and defined by one's culture, are still maintained or upheld by some communities (Govigli *et al.*, 2021; Ihemezie *et al.*, 2023). Most studies about SFs are based in India, with a few conducted in Europe and Africa, and even fewer in South Africa.

Given the global decline of SFs and increasingly threatened biocultural diversity (Brosius *et al.*, 2010; Kandari *et al.*, 2014; Ballullaya *et al.*, 2019; Ejikeme and Okonkwo, 2022), this study set out to assess the role of SFs within the unique political context of South Africa, specifically in two rural communities in KwaZulu-Natal. Considering South Africa's complex history of imperialism, the rise of the Zulu nation, the Apartheid regime, and the transition to democracy, this study is framed within the biocultural diversity approach (Gavin *et al.*, 2015). By adopting a biocultural approach, this study examines (1) the biocultural landscape, i.e., a space in which nature and people coexist (Hong, 2014), of both communities in assessing the cultural and ecological integrity of their SFs, and (2) how culture, through interactions with nature, has contributed to biological conservation.

Sacred forests are integral in forging and preserving cultural identity and heritage. Sacred forests form part of the cultural landscape which include both cultural and natural resources that are associated with histories, events and people, and are a reflection of the culture that has shaped them (Andreychouk, 2015). As such, SFs embody this dynamic, reflecting a community's beliefs, values, religious practices, historical processes and symbolic identities, which often underpin the site's protection (Ihemezie *et al.*, 2023). Internal or traditional governance practices of SFs and their continued protection under tumultuous socio-economic changes and

political transformation are relevant for understanding their resilience and adaptability. Identifying these drivers of change is essential to anticipate future threats and assess how shifts in social, political, or ecological contexts affect forest spirituality, which is essential for understanding its evolution (Roux *et al.*, 2022: 2). Recognising these drivers of change also helps identify conditions or recognise the circumstances that allow forest spirituality to emerge and thrive. Drivers have been defined as any natural or human-induced influence that directly or indirectly results in a change in an ecosystem (Leemans *et al.*, 2003).

To fully understand how local communities relate to SF and how they express their spiritual sacredness, it is also important to examine the ecological condition of the forest and the biocultural systems they support. By determining these dimensions of SFs, the relational values of local communities and the spectra of biocultural loss can be established (Kurashima *et al.*, 2018). As a result, this study adopted an interdisciplinary mixed-methodological approach. The interdisciplinary mixed-methodological approach was underpinned by a biocultural framing to understand the historical contexts of the two communities and their relationships with the SFs, examine the beliefs and values that the communities ascribe to SFs, and identify the driving forces compromising the biocultural relations of the community that need to be addressed. Given the historical context of rural South African communities, the biocultural approach has been used to identify fragmentations in the two biocultural systems. These fragmentations may have potentially reduced the relevance of a biocultural system towards integrated conservation, or threaten the biocultural conservation achievements that have been recently recognised in various studies, e.g., the Mawphlang and Raliang sacred groves in India (Ormsby, 2013), the Malshegu sacred grove in Ghana (Sarfo-Adu *et al.*, 2022) and the Asanting Ibiono SFs of Nigeria (Udeagha *et al.*, 2013). Given the threats most SFs face, the incorporation of the biocultural approach in understanding the ecological integrity of SFs has proven valuable for improving SF management. This approach recognises multiple values (Ihemezie *et al.*, 2023), particularly in reference to relational values, which help in understanding trade-offs in natural resource use and the factors driving resource depletion or exploitation (Roux *et al.*, 2022).

Moreover, this study evaluates the potential of SFs to serve as other effective area-based conservation measures (OECMs) for biodiversity management (Undaharta and Wee, 2020). The concept of OECMs was introduced by the CBD in 2010 and formally defined at COP 14 in 2018 as areas that contribute to long-term biodiversity conservation through effective governance without formal protected status (Cook, 2024). As an extension of the concept of area-based conservation, the conservation of biological diversity as an OECM can be an indirect outcome of other objectives or actions (Cook, 2024). Sacred forests are strong candidates for OECMs due to their cultural beliefs, taboos, and spiritual significance that restrict resource use within these areas. Sacred forests are areas that “in situ” conserve biodiversity along with ecosystem functions and services, which align with the definition of OECMs. However, their effectiveness in this role still need to be assessed taking into account the social and cultural dynamics as well as threats they face. Sacred forests rely on the strength of local governance systems, traditional ecological knowledge (TEK), and cultural values, factors deeply embedded in their stewardship. Such insights are helpful for national entities responsible for SNS

conservation and can inform national policy (Govigli *et al.*, 2021), particularly in relation to existing forested protected area (PA) network proposed over a decade ago (Undaharta and Wee, 2020).

In South Africa, the South African Biodiversity Institute (SANBI), the Department of Forestry, Fisheries and the Environment (DFFE) and other organisations have expanded protected and conservation areas, both privately and communally owned, through the Biodiversity Stewardship project (Whitecross, 2022). However, South Africa has been underreporting about the national and international area-based conservation Aichi target 11 of the Convention on Biological Diversity (CBD), including the Global Biodiversity Framework targets of the draft CBD post-2020. Similar to the Biodiversity Stewardship project that focuses on identifying and assessing potential OECMs in the Western Cape (Whitecross, 2022), this study contributes towards efforts to recognise and expand the network of protected areas and other conservation areas outside this network. The potential incorporation of SFs as part of PA networks and conservation policies will highlight the contribution of traditional management systems and religiocultural practices that support biodiversity conservation approaches (Govigli *et al.*, 2021). It will also ensure the protection of spiritual practices, ensuring that they remain relevant through effective governance (Govigli *et al.*, 2021). Therefore, this study serves to promote the conservation of biocultural relations and systems that are being threatened.

1.1. Sacred forests for conservation: the transition from the Western paradigm

For decades PAs served as the primary foundation for biological conservation globally (Bhagwat and Rutte, 2006), and have resulted in the establishment of over 200 000 PAs since 1872 (Protected Planet, 2023). Despite this, biodiversity is still being lost due to the shortcomings of PAs. This is because approaches to biological conservation are largely based on the assumption that the interactions between people and the environment are mostly simple and linear, rather than focusing on what connects them (Bennett and Reyers, 2024). As such, one of the main challenges of PAs lies with their management which has been ineffective in preventing human encroachment in many situations (Bhagwat and Rutte, 2006; Cook, 2024). The initial conservation approach was authoritarian, which excluded local people premised on the protection from human interference (Soury, 2007). Given that many communities continue to rely on natural resources to meet their basic needs or livelihoods, the exclusion of local people from PAs, both in use and in the decision-making process, has rendered many PAs ineffective (Cook, 2024). Moreover, conservation policy has often been introduced and implemented by outsiders to the region or country, which resulted in local communities having to change their economic activities and way of life (Soury, 2007). This has had devastating consequences on the social structure and has undermined local incentives to care for the environment or natural resources. Protected areas also often exclude habitats or species that are located on land that is occupied or used by local communities. Yet, it has been found that many indigenous communities inhabit or are located in biodiversity rich spaces (Soury, 2007), that they have “sustainably used and maintained over millennia” (Wolfangel, 2004: 1). Even though many indigenous communities in various parts of the world have protected biodiversity for millennia based on their traditional practices, knowledge and beliefs and consequent traditional forms of governance, biodiversity conservation over the last 150 years has primarily been attributed to formal top-down laws that govern and protect nature (Khan *et al.*, 2008).

Due to the short-comings of PAs, there has been increasing recognition of cultural and spiritual values and their significant contribution to protecting biodiversity and managing natural environments. In response to these developments there has been an increasing need for the implementation of bottom-up approaches and for the devolution of power to traditional authorities managing SFs (Soury, 2007; Yuan *et al.*, 2019; Diallo, 2021). This has led to an increasing interest in aligning societal benefits with conservation efforts of PAs, which has resulted in the recognition of other forms of community-conserved areas for their role in mitigating or preventing the loss of biodiversity (Maleku *et al.*, 2023). As such, community-centred conservation that considers local knowledge and practices has been acknowledged for aiding conservation successes, which includes sacred natural sites (SNS) which represent one of the oldest methods of protecting biodiversity and ecosystems throughout the world. Sacred natural sites hold specific meanings for different cultures and communities throughout the world who ascribe sacredness or manifest their sacred significance differently (see section 1.1.2) and consequently different behaviours, codes of conduct or customs for the sacred space and its users have been developed (Pandey and Rao, 2002; Agbaeze *et al.*, 2013). While SNS are not primarily established for biodiversity preservation, they often represent the remnants of natural habitats in many areas (Adeyanju *et al.*, 2022). Despite technological advancements, increasing industrialisation, other influences of modernisation and the effects of climate change, deforestation, modifications and degradation that challenge their ecological sustainability (Khan *et al.*, 2008; Adeyanju *et al.*, 2022), the persistence of many SNS illustrates their contribution to ecosystem resilience and biodiversity conservation (Adeyanju *et al.*, 2022).

The persistence of many SNS also indicates that they have significant value to humans (Wild *et al.*, 2010). These values have been co-created by interactions with nature through practices that are embedded in beliefs, based on the relationships that have been formed with nature and consequent responsibilities that emerge from these relationships developed (Roux *et al.*, 2022). One of the most prominent forms of SNS are sacred forests (SFs) which are owned and maintained or managed by communities of a specific religion or culture through traditional religious beliefs and spiritual values (see section 1.1.4) (Maleku *et al.*, 2023). Therefore, these enduring religious beliefs and spiritual values attributed to the sacredness or spirituality of SFs invariably contain conservation ethics (see section 1.1.3) (Anwana *et al.*, 2012; Adeyanju *et al.*, 2022). For example, SFs typically have strong management systems that are often based on a belief in forest spirits, which contribute to the protection of the SF from destructive harvesting or resource extraction methods (van Andel, 2012). In addition to spiritual values associated with SFs, there are customs and taboos which are informal practices, rather than laws outlining human behaviours that are permissible (Babalola *et al.*, 2014). These play a significant role in the preservation of SFs (Ballullaya *et al.*, 2019; Mahaseth *et al.*, 2023). Hence, the use of natural resources in SFs is controlled and managed as a by-product of traditional beliefs (van Andel, 2012), or depending on the site's level of sacredness is restricted from use. Traditional ecological knowledge and traditional methods are also ways in which SFs are managed and protected. The Iban from Western Kalimantan, Indonesia, effectively manage their forests and the resources that are important to the local community's needs because they are aware that their practices have consequences for their descendants (Wadley and Colfer, 2004; Dudley *et al.*, 2010). Thus, based on the governance approach adopted the site is

either not used or used for different reasons by different communities. Most SFs offer multiple benefits that have contributed to the locals' social well-being, livelihoods, spiritual needs, etc. (see section 1.1.5) (Adeyanju *et al.*, 2022; Maleku *et al.*, 2023), which in turn have contributed to the value and meaning attributed to these sites.

Based on the management of SFs and their sustainable use, many have been recognised for effectively conserving biodiversity outside the formal PA network, and have been proposed to be classified as OECMs (Kumar and Sen, 2022). Although, SFs have not been distinctly identified as a conservation category, their importance in Forest Policy has been increasingly recognised in the Rajasthan state in India (Kumar and Sen, 2022). Prior to this, the International Union for Conservation of Nature (IUCN) passed a resolution affirming the right to indigenous people over their lands. The IUCN encouraged the use of “traditional methods of living”, and promoted the inclusion of local people and their lands into conservation networks without infringing on their ownership, tenure or user rights (Soury, 2007: 13). In addition, the IUCN passed another resolution which recognises and affirms the rights of indigenous communities that maintain their traditional way of life by including them in decision-making processes and granting them the right to self-determination, i.e., their autonomy in defining and pursuing their own development and cultural values (Soury, 2007). This framework promotes the respect and integration of the rights and perspectives of traditional societies in environmental conservation efforts.

Although conservationists have increasingly acknowledged the significant role traditional, indigenous communities play in the conservation of nature, some SFs are increasingly threatened (see section 1.1.6). Some biocultural associations show signs of weakening, i.e., signs of cultures weakening (cultural and spiritual value reduction, and the loss of belief) and ecological degradation (biodiversity loss, habitat degradation and fragmentation, reduced ecosystem services, and depletion of genetic resources) (Kandari *et al.*, 2014). Despite the scientific community being aware for decades that biological and cultural diversity have been facing numerous, interrelated challenges, conservationists and scientists still find themselves without the tools and resources “to address the drivers of diversity loss and global homogenisation” (Gavin *et al.*, 2015: 144). The ecological status and integrity of SFs in Africa are deeply influenced by complex political and economic processes (Adeyanju *et al.*, 2022). In addition, the top-down approaches for conservation have often overlooked these socio-political realities and led to ineffective or unsustainable outcomes (Khan *et al.*, 2008). Therefore, local communities need to be included in the management of the landscape, i.e., stewardship of SFs and their resources should be delegated to communities to foster a sense of ownership, reinforce TEK, and strengthen their conservation (Bhagwat *et al.*, 2005; Verschuuren, 2010; Ballullaya *et al.*, 2019; Mahaseth *et al.*, 2023).

1.2. Sacred forests

1.2.1. The contribution to the emergence of sacred forests

In many communities throughout the world special status has been given to natural sites such as mountains, rivers, lakes, caves, forests, springs, coastal waters, etc., that are venerated across various cultures worldwide

due to their spiritual significance (Oviedo *et al.*, 2007; Dudley *et al.*, 2010; Verschuuren *et al.*, 2010). Sacred natural sites are created by humans and their spiritual interaction with the landscape (Wild *et al.*, 2010). Many SNS have ancient origins and are culturally significant as their sacredness is derived from or attributed to religiocultural beliefs associated with indigenous and local communities (Verschuuren *et al.*, 2010; Hakim *et al.*, 2023). These traditional cultural communities often believe in two realms of reality, i.e., the visible and invisible worlds (Anwana *et al.*, 2012). The visible world is characterised by tangible objects of nature and humans. Whereas the invisible world is distinguished by the intangible such as ancestral spirits, God, deities and/or gods, and as a consequence, some SNS are attributed to ancestor worship and/or are a veneration of burial grounds or shrines (Verschuuren *et al.*, 2010). Sacred forests (SFs) as one of the forms of SNS are associated with beliefs including ancestral spirits and the divine that people interact with during rituals, festivals, prayer and meditation (Delgado-Aguilar *et al.*, 2019). Sacred forests can be defined as forests that have a special spiritual significance that is embedded in a belief system (Verschuuren *et al.*, 2010) and usually “protected under cover of religious beliefs and taboos” (Abdullah *et al.*, 2022:2).

Many SNS are also associated with animism, which is the belief in spiritual beings that are embodied in biotic and abiotic components of the natural environment (Verschuuren *et al.*, 2010). Examples of biotic embodiment include the belief that trees embody spiritual beings and are considered a prominent feature believed to be sacred (Barrow, 2010). For example, in Niger, tamarind trees (*Tamarindus indica*) in Bambara village are considered sacred because it is believed that they are inhabited by spirits and, therefore, taboo to fell (Barrow, 2010). On the other hand, abiotic embodiment is displayed during the *Feng Chan* ritual which involves the worship of the holy mountains (Dudley *et al.*, 2010; Shengii, 2012). In South-west China, in the Xishuangbanna region, it is believed that the Forested Holy Hill (*Nong*) is where the gods reside (Hongmao *et al.*, 2002; Dudley *et al.*, 2010). As such, all plants and animals from the forested hill are believed to be either the companions of the gods or are considered sacred life in God’s garden. It is also believed that in some instances all great ancestors and revered chieftains’ spirits live in the Holy Hills after their “departure from the world of the living” (Oviedo *et al.*, 2007: 80). As such, some SFs are inherently sacred and the notion of sacred denotes respect and exclusivity for spiritual and/or religious aspects. For example, in the isiXhosa community in Alice and Peddie districts, South Africa, the traditional isiXhosa idiom “*uThixo ulihlathi lam* (literally: God is my forest; figuratively: God is my refuge)” does not simply represent a vegetation type but is also considered to represent the significance attached to the forest a powerful metaphor (Cocks *et al.*, 2012: 55). The forest is perceived as fulfilling many needs of the community and is therefore perceived as having the qualities of “God”.

Figure 1.1 summarises the reasons for sacredness that are attributed to SFs, including how they manifest or confer their sacredness. For example, some forests are also deemed sacred due to burial grounds (Byers *et al.*, 2001; Verschuuren *et al.*, 2010), like that of the local Korekore (Shona), in Zimbabwe, who conduct burials in the dry forests. As such, the SFs are believed to be inhabited by spirits and considered sacred places (Byers *et al.*, 2001) and are also considered cultural living places for deities and spirits (Kandari *et al.*, 2014). The sacredness of some SFs being conferred based on their histories is reflected by Ormsby and Edelman (2010).

They reported that residents of Tafi Atome migrated from Assini to central Ghana about 200 years ago with an idol that was placed in the forest for safekeeping and as a cool place for the gods to reside. Hence, the forest was immediately deemed sacred, which resulted in the community protecting it (Ormsby and Edelman, 2010). The figure also indicates that there are several ways sacredness is manifested as they can also be deemed as places of pilgrimage (Kandari *et al.*, 2014), as sites of revelation and/or transformation, or they can be associated with special events, or deemed sacred because they are a closely guarded secret by their custodians (Garcia-Varela, 2007; Oviedo *et al.*, 2007; Verschuuren *et al.*, 2010; Kandari *et al.*, 2014). Figure 1.1 also illustrates that these sites can sometimes be deemed sacred by a prominent or authoritative figure in the community depending on the use or function of the location (Kamga-Kamdem, 2010), or their knowledge. For example, the spirit medium in the Shona religion possesses ancestral spirits which contribute to his/her knowledge of what is sacred and what is not (Byers *et al.*, 2001). The sacred significance of SFs are, therefore, defined based on their use, function, belief systems and regulations associated with respect, veneration, and community values (Kamga-Kamdem, 2010). Therefore, the reasons for their sacredness are diverse and their origins are often mysterious or unclear (Oviedo *et al.*, 2007).

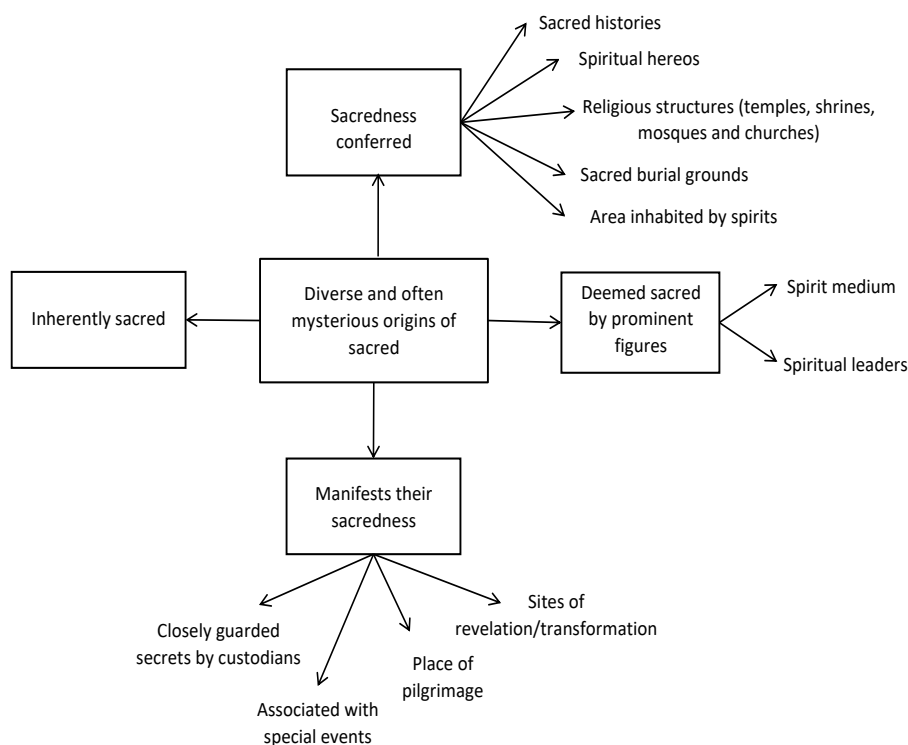


Figure 1.1. The origins and diverse forms of sacredness attributed to sacred forests

1.2.2. Spiritual values for the protection of sacred forests

Cultural beliefs are derived from the relationships and interactions between nature, people and particular practices (Abram *et al.*, 2013; Delgado-Aguilar *et al.*, 2019). Moreover, relationships and interactions are in connection to spiritual values, of which interacting with nature influences a person psychologically regardless of the forms of governance or management practices associated with the SF (Roux *et al.*, 2022). Therefore, SFs have strong spiritual values that include spiritual, aesthetic and inspirational values which are central to

SFs irrespective of the belief system (Haines-young and Potschin, 2010; Abram *et al.*, 2013; Delgado-Aguilar *et al.*, 2019; Roux *et al.*, 2022). In addition, changing attitudes about forest management, regulations and policies are linked to shifting views or perceptions of nature, which alters the environment and, in turn, people's perceptions of it. For example, if perceptions of nature change, then the attitude towards SFs and their management are also influenced, which alters the landscape and in turn further affects the perceptions of the landscape (Roux *et al.*, 2022). Chan *et al.* (2016) proposed that relational values consider how people relate to nature and the people around them, including the spiritual inspiration experienced in nature (Diaz *et al.*, 2015). Cultural heritage, beliefs and practices are inherently relational and in many traditional, cultural communities, ecosystems are understood and appreciated for more than just their natural objects because ecosystems encompass the role of spirits and ancestors (Anwana *et al.*, 2012). Indigenous practices and the traditional way of life can be considered as representing biocultural entities, in which the landscape is protected by human actions, attitudes, beliefs and behaviour influenced by spiritual values (Anwana *et al.*, 2012; Roux *et al.*, 2022). Barrow (2010: 42) claimed that the cultural and spiritual relationships humans share with nature should not be overlooked, because “most of the main spiritual beliefs traditionally had strong connections with nature, as they were founded in times dependent on nature”.

Relational values relate to the desirable relationships that people aim to establish, i.e., the collective well-being concerning ‘what is right’ or morally correct about the natural environment. Relational values concur with environmental culture, which refers to the historical relationship between people and nature (Okano and Matsuda, 2013), and can better demonstrate how conservation programmes affect human relationships with nature (Chapman *et al.*, 2019). Brosius *et al.* (2010) stated that conservation is never static and comprises a nexus of relationships, i.e., between national government, (private or non-profit) organisations, and local people. Hence, “conservation is inherently political” at all levels, i.e., concerning decision-making, knowledge generation, local communities, negotiating benefits, associated legalities, livelihoods, etc. (Brosius *et al.*, 2010: 148). Therefore, conservation is not simply about finding management processes and developing appropriate conservation technologies (Cocks *et al.*, 2012), it also requires an understanding of people’s values, perceptions and worldviews that are inextricably bound in nature (Cocks *et al.*, 2012; Gavin *et al.*, 2015).

1.2.3. Sacred forests governance

Variations in management practices of SFs exist between communities depending on associated activities, the status of members of the community, differences in size and tenure of the SFs, and contributions to local livelihoods (Oviedo *et al.*, 2007). Sacred forests range in size from a few square meters (Khan *et al.*, 2008), to a few square kilometres (Pandey and Rao, 2002; Ormsby and Edelman, 2010), and are guarded by local communities or groups. The idea behind this protection is that maintaining these areas relatively undisturbed is a sign of a significant relationship with the natural world or the divine. Different SFs have different levels of sacredness attributed to them, which influences their level of management. For instance, some SFs are considered very sacred and see “no distinction between regulation breakers (natives, foreigners or simply the ignorant)”, while other sites allow leeway when taboos are ignored (Kamga-Kamdem, 2010: 124).

Endogenous rules of governance vary with, or sometimes depend on, the level of sacredness or ancestral significance of the site, the physical landscape and forest availability which influence cultural activities and resource use (Nganso *et al.*, 2012; Rath *et al.*, 2020).

As outlined in Figure 1.2., different SFs are governed differently by different communities. Sacred forests are protected, administered and managed by custodian communities, traditional authorities or local institutions that have persisted through generations (Khan *et al.*, 2008; Verschuuren, 2010, Mahaseth *et al.*, 2023). The role of a local chief in the site's protection is attributed to his or her power and authority over the community, which is often closely connected or intrinsically linked to his/her role as the supreme custodian and protector of an SF (Schaaf and Rossler, 2010). For example, in Ongoye forest, South Africa, the traditional leader (*Nkosi Mzimela*) plays a prominent role in the conservation of the forest and supports sustainable harvesting of natural resources grounded in the past ideals of the legacy and leadership of King Shaka (Lawes *et al.*, 2004). Traditional leadership is also believed to be based on ascribed values (Pandey and Rao, 2002). Figure 1.2 also includes the role of a spiritual figure in the management of the site. For instance, in Maharashtra, India, the customs regarding sacred groves “are set down by priests with knowledge of forest deities and their influence on life” (Oviedo *et al.*, 2007: 3). Spiritual leaders also share stories with community members or visitors relaying details concerning the supernatural penalties that are faced by those who desecrate SFs.

In some contexts, local, indigenous institutions play a role in SF management (Figure 1.2) (Anwana *et al.*, 2012, Mahaseth *et al.*, 2023). For example, SFs are either completely off-limits (Babalola *et al.*, 2014), or permitted to be used for ceremonies that should only be practiced in the SF, e.g., the Sarhul festival for the Sarhul Sarna deity in Bihar, India (Pandey and Rao, 2002; Nganso *et al.*, 2012), the removal of natural resources from the SF is permitted, or the use or removal of resources for only religious purposes are permitted (Ormsby, 2013). Some SFs are not restricted to solely fulfilling spiritual needs, instead, the institutions permit the use of various resources as long as permission is obtained from the deity, which is granted through a ritual process (Oviedo *et al.*, 2007), or an offering is made to the spirits or gods (van Andel, 2012). For example, the Maroon belief of Suriname allows for the use of natural resources such as leaves from sacred trees for rituals, but the trees are not allowed to be cut down, but permission can be obtained personally from the deities (van Andel, 2012). There may also be rules pertaining to who is permitted to use the SF, for example, it can only be used by higher-ranking individuals, e.g., spiritual leaders, traditional authority, etc. In Bandjoun, West Cameroon, only certain people are allowed to collect NTFPs (Kamga-Kamdem, 2010), whilst in other SFs all members of the community have a right to collect or harvest resources from the SF or the collection of only NTFPs and fallen dry wood is permitted (Pandey and Rao, 2002). There are some SFs that allow all community members access to their needs and livelihoods (Shengii, 2012; van Andel, 2012; Udeagha *et al.*, 2013; Mahaseth *et al.*, 2023). For example, some groups in China are dependent on the forested hills of Yunnan for the supply of plant and animal products that support their daily living and well-being and they are permitted to collect and use forest resources for their livelihoods (Shengii, 2012).

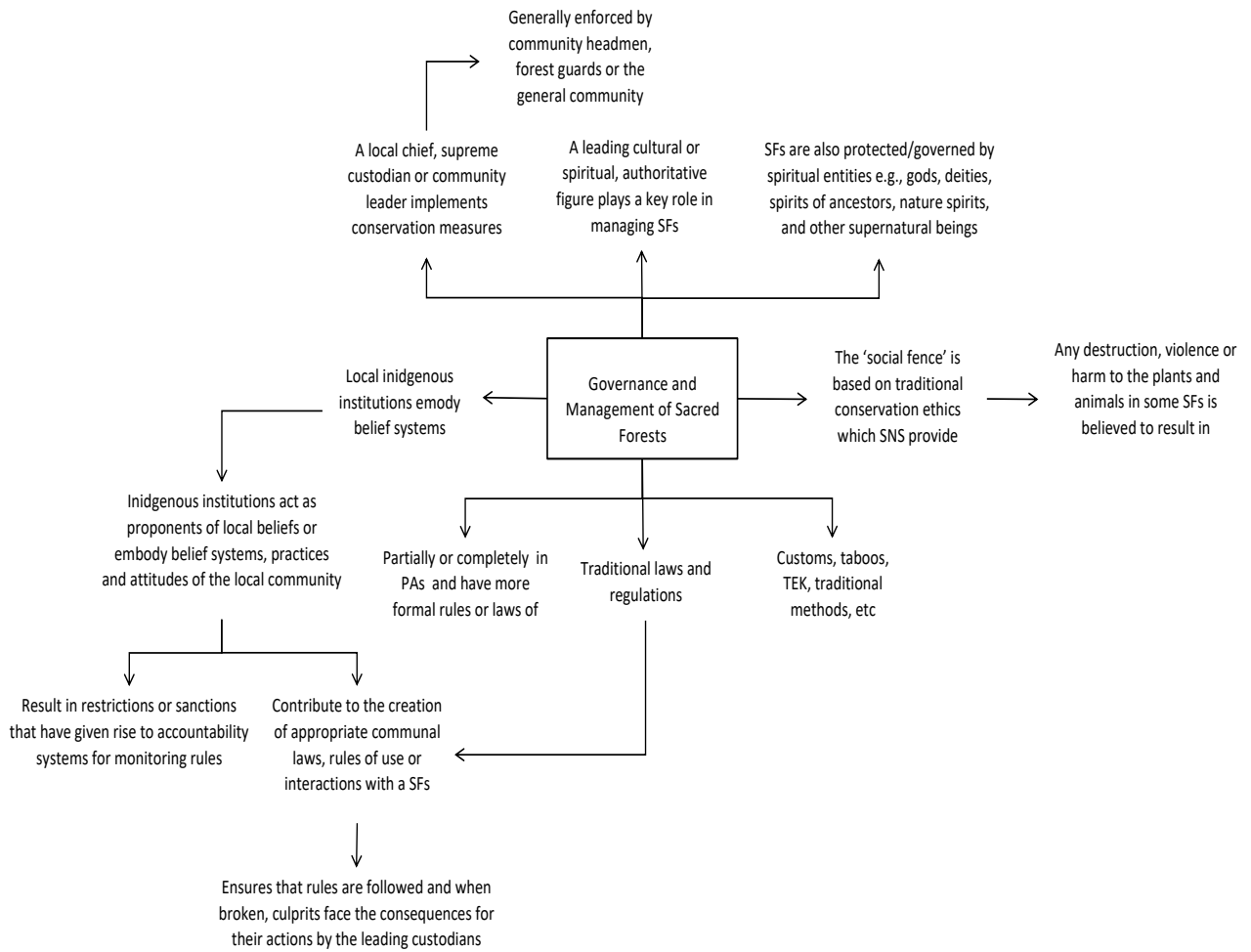


Figure 1.2. How local members interact with SFs based on social codes or taboos derived from rules, belief systems and institutions that govern them.

Figure 1.2 also illustrates physical and spiritual forms that contribute to the protection of the site. There are some SFs that may also fall within statutory-protected areas, such as the Ngome State Forest of South Africa (Zululand Heritage Route, 2020). Some SFs have either physical protective boundaries, e.g., fences or trenches are dug around them, to aid in management and protection (Ormsby and Elderman, 2010), or are delineated by roads, rows of trees, pathways and hedges (Kamga-Kamdem, 2010). For example, the SF in Tafi Atome, Ghana, was protected from encroachment via the demarcation of the boundary of the sanctuary using mahogany trees (*Khaya senegalensis*) planted along the forest edge. Not all SFs have defined boundaries. Kamga-Kamdem (2010) found that local people were able to recognise their SNS based on local knowledge without a boundary being demarcated. An interesting concept relating to the management of SNS is that of the ‘social fence’ which is used to determine the extent of the SNS or conservation area that is sustainably used through customary use (Arora, 2006; Verschuren, 2010; Mahaseth *et al.*, 2023). Figure 1.2. also indicates other cultural forms of protection that local communities have adopted to manage their natural environments. For instance, ecological knowledge obtained through centuries of observation and practice (Pretty *et al.*, 2009; Mialhe *et al.*, 2015), which is considered a “novel tool” for sustaining local practices (Singh *et al.*, 2010: 528). They have played a role in conserving or maintaining local ecosystems.

1.2.4. Uses, benefits and values attributed to sacred forests

Based on the different forms of governance and sacred significance of the SFs, it would be misleading to assume a complete ban on resource use in SNS (Oviedo *et al.*, 2007). Sacred natural sites illustrate that people still depend on nature not only for material needs (Verschuuren *et al.*, 2010; Wild *et al.*, 2010), but also for spiritual fulfilment (Verschuuren *et al.*, 2010; Wild *et al.*, 2010). Sacred forests provide a range of ecosystem services (ES) or resources used in rituals by traditional priests or medicinal plants used by healers (Lawes *et al.*, 2007; Oviedo *et al.*, 2007; Mahaseth *et al.*, 2023). For example, the use of bark for medicinal purposes by traditional healers may be exclusively used for religious purposes and not associated with any economic gain (Grace *et al.*, 2002). Use in some SFs is also permitted for cultural purposes, for example, amongst the Winti people of Suriname, bark is used to bathe in to purify oneself from evil spirits and witchcraft. Plants are also used to protect a user from calamities; for example, Winti men rub their bodies or bathe with decoctions of herbs for their protection against machete attacks, bullets or broken glass (van Andel, 2012). Some rituals or sacrifices that are conducted to appropriate the ancestors, spirits or deities of the SF (Pandey and Rao, 2002), require the extraction of resources from the SF for spiritual or ceremonial purposes. For example, in Alice and Peddie districts, South Africa, plant and animal materials believed to be available only in SFs (*ihlathi lesiXhosa*), are used for traditional medicine, customs and rituals to appease the ancestors (Cocks *et al.*, 2012). These plants and animals are considered sacred and are imbued with the spiritual power of their ancestors (Cocks *et al.*, 2012). Other cultural practices include the celebration of gods or ceremonies to give thanks to the gods. Sacred forests offer various ways of obtaining spiritual healing or upliftment. For example, plants are collected as the main ingredient for herbal baths and are used for spiritual purposes amongst the Winti people to strengthen the spiritual well-being of an individual.

Sacred forests may also serve as a source of livelihood for many communities (Udeagha *et al.*, 2013; Ballullaya *et al.*, 2019; Mahaseth *et al.*, 2023), that have either limited or no cash income (Kalaba *et al.*, 2013). Locals are able to consume, use and sell NTFPs, which do not require much capital investment, besides travel time and labour (Lawes *et al.*, 2007; Kalaba *et al.*, 2013). As a result, many such communities depend largely on their local natural environment for their basic needs and their livelihoods, consequently, people enter SF risking financial, material or mystical punishment for their basic needs (Soury, 2007). The Winti medicinal plant trade accounts for over 56% of 249 species sold at the local markets and has one or more applications in ancestor rites or herbal baths (van Andel, 2012). Often SFs also enable communities to recover or cope with shocks (Kalaba *et al.*, 2013). Many rural communities are vulnerable to shocks but have limited adaptive capacity due to a lack of, or weak, social-support systems or (public) safety-nets (Kalaba *et al.*, 2013). Safety-nets are a coping strategy wherein resources available are used, sometimes heavily, by households or individuals during times of economic, social, environmental or political crisis (Shackleton and Shackleton, 2004; Paumgarten, 2007). Therefore, provisioning services from NTFPs, like medicinal plants, fruits, fuelwood, fresh water, etc., as well as timber for building materials provided by SFs have been recognised as important safety-nets that are available throughout most of the year or in times of need (David *et al.*, 2019; Ochi and Zaman, 2022). Sacred forests also offer ecotourism opportunities for local communities, for

example, Tafi Atome Monkey Sanctuary (Ormsby and Edelman, 2010), and Winti religious specialists who administer herbal purification baths for tourists (van Anandel, 2012). Ecotourism allows for local development and livelihoods (Ormsby and Edelman, 2010), whilst still meeting the demands of conservation through the provision of incentives, i.e., an alternate or supplementary means of livelihood (Ormsby and Edelman, 2010). Thus, socioeconomic values derived from ES according to Verschuuren (2010) contribute to the indigenous way of life through different occupation types and levels of trade viz. indigenous and local/global economies.

Many SFs also provide supporting services and benefits such as the production of oxygen, rainfall and photosynthesis (López-Marrero and Hermansen-Báez, 2011) and support habitats by serving as a sanctuary for species, especially in transformed landscapes. Lastly, SFs provide regulating ES such as carbon sequestration which helps mitigate climate change, water and air purification, dispersal of seeds and soil erosion control which helps limit erosive surface run-off and landslides (Haines-young and Potschin, 2010; Abram *et al.*, 2013; Delgado-Aguilar *et al.*, 2019). Some SFs also serve as a windbreak, for example in parts of Rajasthan, India (Dudley *et al.*, 2010). Based on these ES, SFs are associated with instrumental values as well as intrinsic values. The former is based on the contribution of biodiversity and sustainable ecological use of nature to human well-being because any loss of biodiversity or a lack of attention to biodiversity conservation threatens human well-being at various scales (Bhagwat *et al.*, 2005; Diaz *et al.*, 2006; Diaz *et al.*, 2015; Chana *et al.*, 2016). Whilst the latter refers to moral duties or principles, independent of any human consideration of their worth, satisfaction or importance to human well-being (Haines-Young and Potschin, 2010; Diaz *et al.*, 2015). Thus, ES derived from SFs interact with and enrich human lives in a range of ways, contributing to both local economies and livelihoods (Tengö *et al.*, 2014), traditional cultural beliefs, practices and spiritual well-being and the environment (Verschuuren *et al.*, 2010). Nevertheless, within the context of SFs, cultural services which include spiritual values that are inherently relational, instrumental and intrinsic values have been acknowledged for inadequately resonating with personal views and perceptions. Relational values have instead been proposed (see section 1.1.3), as a more effective framework for identifying and addressing threats to the integrity of SFs. Some solutions that have been adopted or proposed as management strategies are also highlighted in the succeeding section.

1.3. The conservation potential of and threats to sacred forests

Sacred forests have been protected for millennia (Oviedo *et al.*, 2007; Verschuuren *et al.*, 2010) and are considered the world's first conservation areas due to the limits placed on human use (Wild *et al.*, 2008; Dudley *et al.*, 2010; Verschuuren *et al.*, 2010). Consequently, Wild *et al.* (2010) argued that SNS served as the backbone for “modern” state and privately-owned protected areas. The erosion of traditional cultural beliefs and values threatening the long-term sustainability of SFs (Dudley *et al.*, 2010; Wild *et al.*, 2010; Shengii, 2012; Kandari *et al.*, 2014). These have been particularly noticeable amongst the younger generation (Mahaseth *et al.*, 2023). As a consequence, biodiversity within many SFs is becoming threatened, further undermining the relationships, livelihoods, daily needs and cultural traditions and practices of local communities with the SFs (Khan *et al.*, 2008; Dudley *et al.*, 2010). Considering the threats many SFs face it

is important to understand the “disturbance context”, i.e., the reasons and interests in visiting and using SFs (Alhou *et al.*, 2017: 6).

1.3.1. Resilience and adaptability of sacred forests amid fundamentalism and modernisation

Wild *et al.* (2010) reported that SNS serve as nodes of resilience and resistance against global threats such as climate change, modernisation and globalisation. This is because of their ability to adapt to changing circumstances. The literature has shown that traditional beliefs and practices of SNS are crucial for their resilience and resistance. For example, despite decades of development, education and religious fundamentalism, i.e., where mainstream religion takes precedence over societal and traditional norms that need to be justified in accordance with laws outlined by religious script (Choueiri, 1993; Losurdo, 2004), the Malshegu community in Ghana maintained and adhered its traditional religious beliefs (Dorm-Adzobu *et al.*, 1991). It is these beliefs that contributed to the environmental stewardship and adherence to traditional rules of the SF. Likewise, a more recent study reported that the Malshegu SF is protected by the community as it is associated with the provision of rainfall, successful crop harvests and fertility. Due to these associations plant species that are disappearing in forests that have lost canopy cover are found in the SF (Corbin, 2008). However, the challenges posed by fundamentalism and modernisation have undermined the resilience of some SFs in other traditional communities (Figure 1.3).

Figure 1.3 illustrates how two driving forces namely, fundamentalism and modernisation, threaten SFs as nodes of resilience. Three main outcomes are shared concerning increasing fundamentalism. First, fundamentalism has resulted in altering traditional religiocultural beliefs and cultural traditions (Pandey and Rao, 2002; Khan *et al.*, 2008; Brosius *et al.*, 2010; Ormsby, 2013; Ballullaya *et al.*, 2019). The conversion to Christianity leads to the acculturation of the converted, transitioning from traditional practices to those of the new faith (Mahaseth *et al.*, 2023). Christianity has resulted in a shift away from ascribing spirits and deities to nature as it did not see anything good in traditional ancestral religious systems (Agbaeze *et al.*, 2013). Christianity often viewed the veneration of “sacred groves as a superstitious and primitive belief” (Pandey and Rao, 2002: 9), thereby affecting the conservation of SFs (Agbaeze *et al.*, 2013; Ballullaya *et al.*, 2019). Similarly, the advent of Hinduism in India led to the sanskritization of traditional deities, i.e., the replacement of or shift from animism or local folk deities to propitiating Hindu gods instead, thus, impacting the preservation of SGs (Bhagwat and Rutte, 2006; Ballullaya *et al.*, 2019: 2).

Second, as more fundamental religions dominate globally, the disintegration of traditional cultures has intensified and has threatened SFs in India and Africa (Nganso *et al.*, 2012). It has been found that rituals are no longer being performed in communities with disturbed forests (Ormsby, 2013). This spiritual abandonment of some forests has led to the desanctification of SNS and increased abuse and degradation due to changing attitudes towards SF preservation (Pandey and Rao, 2002; Oviedo *et al.*, 2007; Agbaeze *et al.*, 2013, Babalola *et al.*, 2014). Reduced interaction with nature also contributes to the loss of TEK and reduces respect for SFs (Sinthumule and Mashua, 2020).

Third, the influence of the traditional authority and their governance systems that have historically protected SFs have been undermined (Agbaeze *et al.*, 2013; Babalola *et al.*, 2014; Ballullaya *et al.*, 2019). For example, the diminished leadership and custodianship of the Nongtchuép in Bandjoun, West Cameroon, resulted in the loss of belief and erosion of taboos (Kamga-Kamdem, 2010). The consequence of the loss of traditional institutions or authority responsible for the management and preservation of SFs was evident in the Zambizi Valley of Northern Zimbabwe where significant forest loss was a result of the loss of traditional authority (Byers *et al.*, 2001).

Concerning the second driving force, Figure 1.3 illustrates how modernisation results in unprecedented resource acquisition and over-exploitation found in many regions. Modernisation has also led some communities to become increasingly less dependent on nature (Brosius *et al.* 2010; Kandari *et al.*, 2014). Modernisation has also been associated with government influence that has contributed to the demise of traditional authority structures.

Finally, Figure 1.3 deals with the dwindling faith in traditional religious beliefs and cultural practices amongst the youth. “National education” has resulted in a shift away from traditional values as it served to justify principles of modernity (Wadley and Colfer, 2004: 334), and justified the Christian belief given that education was often introduced with the arrival of Christianity (Singh, 2006). Like fundamentalism, education profiled traditional beliefs and practices as superstition and primitive, which caused the younger generations to move further away from traditional beliefs and from practising long-practiced traditions (Chandrakanth *et al.*, 2004; Migosi and Ndege, 2013; Nganso *et al.*, 2014). In Kerala, India, the loss of ancestral beliefs has led to youth apathy towards the conservation of the SF (Nganso *et al.*, 2014; Ballullaya *et al.*, 2019; Mahaseth *et al.*, 2023). Moreover, Westernisation has led to a decline in the belief in ancestral ‘power’ and traditional cultural practices amongst the youth (Kamga-Kamdem, 2010), which has fragmented relationships, degenerated TEK and contributed to the deterioration of many SFs (Ballullaya *et al.*, 2019). Recognising young people as agents of cultural change, education programmes concerning the importance of SFs and their preservation and integrating TEK into the school curriculum can aid in the preservation of SFs (Wadley and Colfer, 2004; Kamga-Kamdem, 2010; Kandari *et al.*, 2014; Sinthumule and Mashua, 2020). Furthermore, apathy underscores the need to include the youth in rituals and sacrifices, to foster the connection with SFs and address the growing disbelief in rituals and cultural practices. Additionally, recognising the role of religious beliefs helps to shape the attitudes and behavioural choices of locals, i.e., either contributing to or undermining the persistence of SFs, and influencing perceptions of use, management and conservation (Byers *et al.*, 2001; Ballullaya *et al.*, 2019).

1.3.2. The impacts of land use changes and climate change on sacred forests

Some SNS have been characterised by their adaptive nature as a response to changes in circumstances or the natural environment (Oviedo *et al.*, 2007). First, Figure 1.4 illustrates that the long-term establishment of SNS are not guaranteed. For example, factors such as infrastructure development or socio-political changes can be initiated by spiritual leaders who have the power to change the location of sacred sites (Kamga-Kamdem, 2010). Such relocations have in some instances jeopardised a site's cultural and ecological integrity. In southwestern India, landowners seeking to repurpose SFs hire Tantric priests to conduct a ceremony to relocate a local snake deity to justify and facilitate these transformations (Yuan *et al.*, 2019).

Figure 1.4 also shows how land use change plays a role in undermining the establishment of SFs (Khan *et al.*, 2008; Dudley *et al.*, 2010). Land use changes include human encroachment, increased accessibility and agricultural expansion. These impacts highlight the interrelated consequences of such changes on both the ecological and cultural fronts. Other instances of land use change include the community of Bandjoun, Cameroon, where community members progressively cleared their SF by extending their lands (Kamga-Kamdem, 2010). In contrast, the adaptive nature of other SFs, i.e., “new sites can be created in response to changing circumstances and environment”, have contributed to the conservation of SF and the attendant biocultural diversity (Oviedo *et al.*, 2007: 3). For example, the Shona traditional governance in Zimbabwe is characterised by its adaptive nature in being flexible in deeming a space sacred or not, either adding it or removing it, for effective social and environmental management (Byers *et al.*, 2001). In this way, the adaptive nature of some SFs strengthens and preserves the cultural values, heritage and history of some communities (Chandran and Hughes, 2000; Oviedo *et al.*, 2007; Khan *et al.*, 2008).

Such land use changes can result in the increasing risk of landslides and flooding (Shengii, 2012), as well as in forest fragmentation, which increases the potential for local extinctions as corridors are reduced between the forest patches (Lawes *et al.*, 2007). The loss of biological diversity does not only signify a reduction in biodiversity but also marks a disturbance in the ecological processes critical to these areas. These ecological disruptions extend beyond the physical degradation of habitats to threaten the cultural heritage of SFs. Sacred forests are not just reservoirs of biodiversity (Oviedo *et al.*, 2007; Kamga Kamdem, 2010; Verschuuren, 2010); they are repositories of cultural traditions, religious practices, and traditional knowledge (Ballullaya *et al.*, 2019).

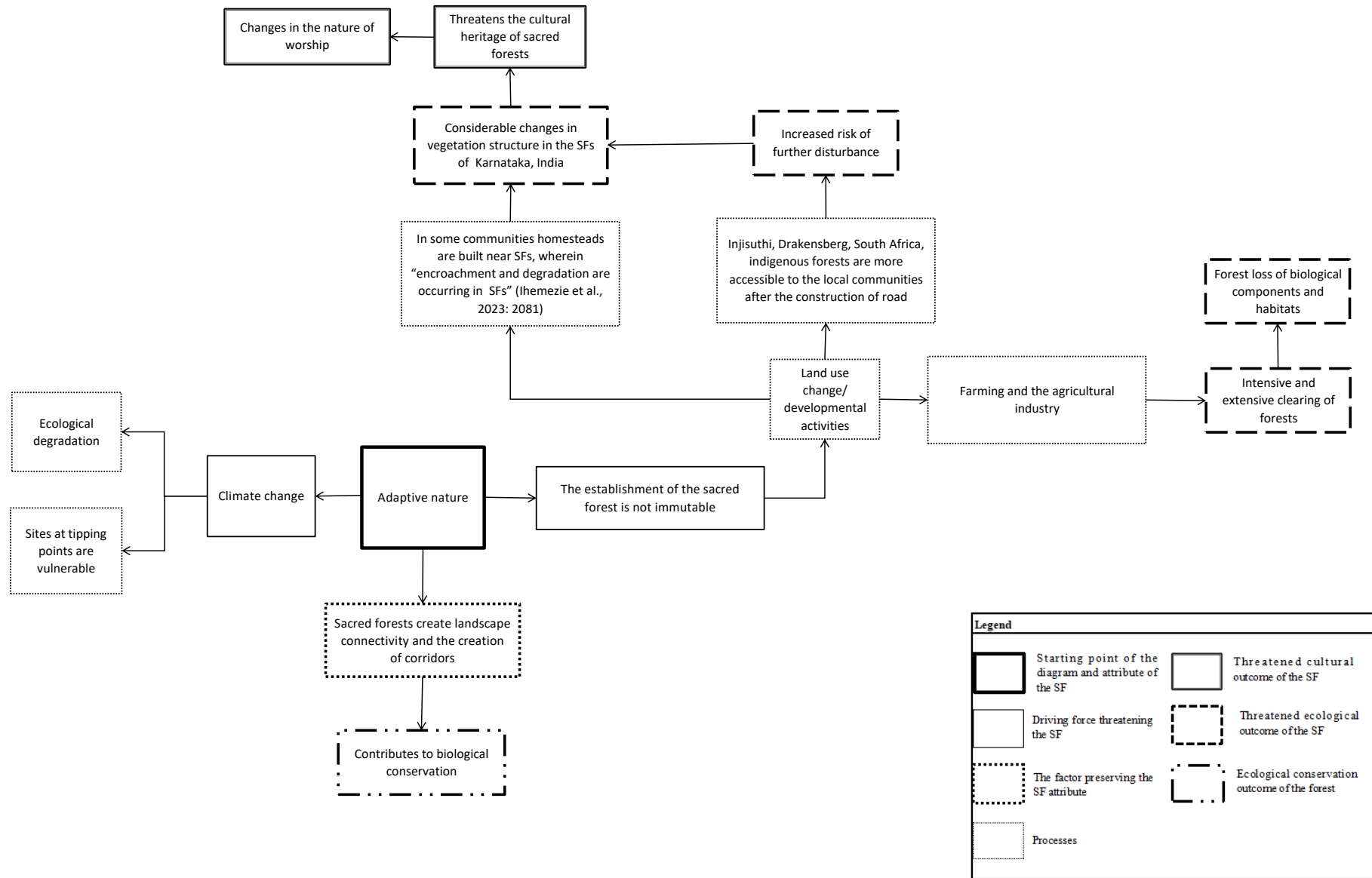


Figure 1.4. Reasons for the continuity of the adaptive attribute of SFs and the threats undermining this attribute.

Figure 1.4 also illustrates that climate change influences the adaptive nature of SFs. First, climate change alters the ecological condition of many SFs and affects species composition and their habitats (Schaaf and Rossler, 2010). Yet in other instances they are also considered as nodes of resilience aiding climate change mitigation and adaptation. Second, climate change also increases the risk of already vulnerable SFs that may be at critical tipping points (Schreckenber *et al.*, 2016). For example, SFs located in vulnerable environments such as mountains, islands and coastal areas may become more vulnerable due to climate change (Schaaf and Rossler, 2010).

Finally, Figure 1.4 highlights that some SFs create opportunities for landscape connectivity and the creation of corridors (Wild *et al.*, 2010). As such, in the face of climate change exacerbating extreme events such as floods, droughts and fires, the belief systems of custodian communities have enabled them to adapt to these changing environmental conditions (Wild *et al.*, 2010). For instance, Ford *et al.* (2020) looked at place-based elements that influence indigenous peoples' resilience to environmental change via collective action, traditional institutions, indigenous knowledge and the role of place. These elements affect the coping, adaptive as well as transformative capacities of local traditional communities. Ford *et al.* (2020) provided various examples, (1) the Rispek and Kastom Nakanamang beliefs of the Vanuatu people of the South Pacific Ocean that aid in kinship, especially during disaster recovery through shared labour and resources, (2) the Ayllu belief of the Quechua people of Peru which underpins obligations to the family through collective land stewardship or collective labour such as traditional crop rotation, and (3) in South Africa, the ideology and practice of ubuntu, premised on communal living, ownership and support systems, was noted to help during weather-related disasters.

1.3.3. Sacred forests as biodiversity sanctuaries: conservation value vs romanticisation

While some SFs have shown signs of biocultural deterioration due to the loss of traditional beliefs, Figure 1.5 demonstrates that others serve as sanctuaries for various species and play a critical role as refugia within landscapes that show signs of species depletion. Refugia are areas that protect or shelter species from disturbances or disasters (Mjoli and Shackleton, 2024). The term has various definitions; however, most definitions understand refugia to be spatial areas that allow for species to escape from adverse effects or are considered 'buffer' areas that can resist, withstand or isolate from environmental change or endure considerably lower effects than the surrounding area (Mjoli and Shackleton, 2024). More specifically, SFs are considered cultural refugia because of traditional cultural beliefs that often prohibit access or restrict harvests. Sacred forests as a cultural refuge have become known as 'life reserves' (Figure 1.5) which survive today without benefit from government gazettement, state wardens, or government education centres (Oviedo *et al.*, 2007; Ballullaya *et al.*, 2019). As such, many SFs are considered effective community-based, conservation areas given their prohibited access and use. The prohibited or restricted use of the groves has contributed to their high biological diversity (Onyekwelu *et al.*, 2022). High diversity, like in southwestern Nigeria and Tamil Nadu, India, is due to the religious belief that the SF is the home to the deities (Onyekwelu *et al.*, 2022). Moreover, the religious beliefs and the importance of other spiritual values resulted in the locals refraining from destroying them (Onyekwelu *et al.*, 2022). For instance, SFs

in Benin which are fragments of old and primary forests which were less disturbed than the reserve forests (Alohou *et al.*, 2017).

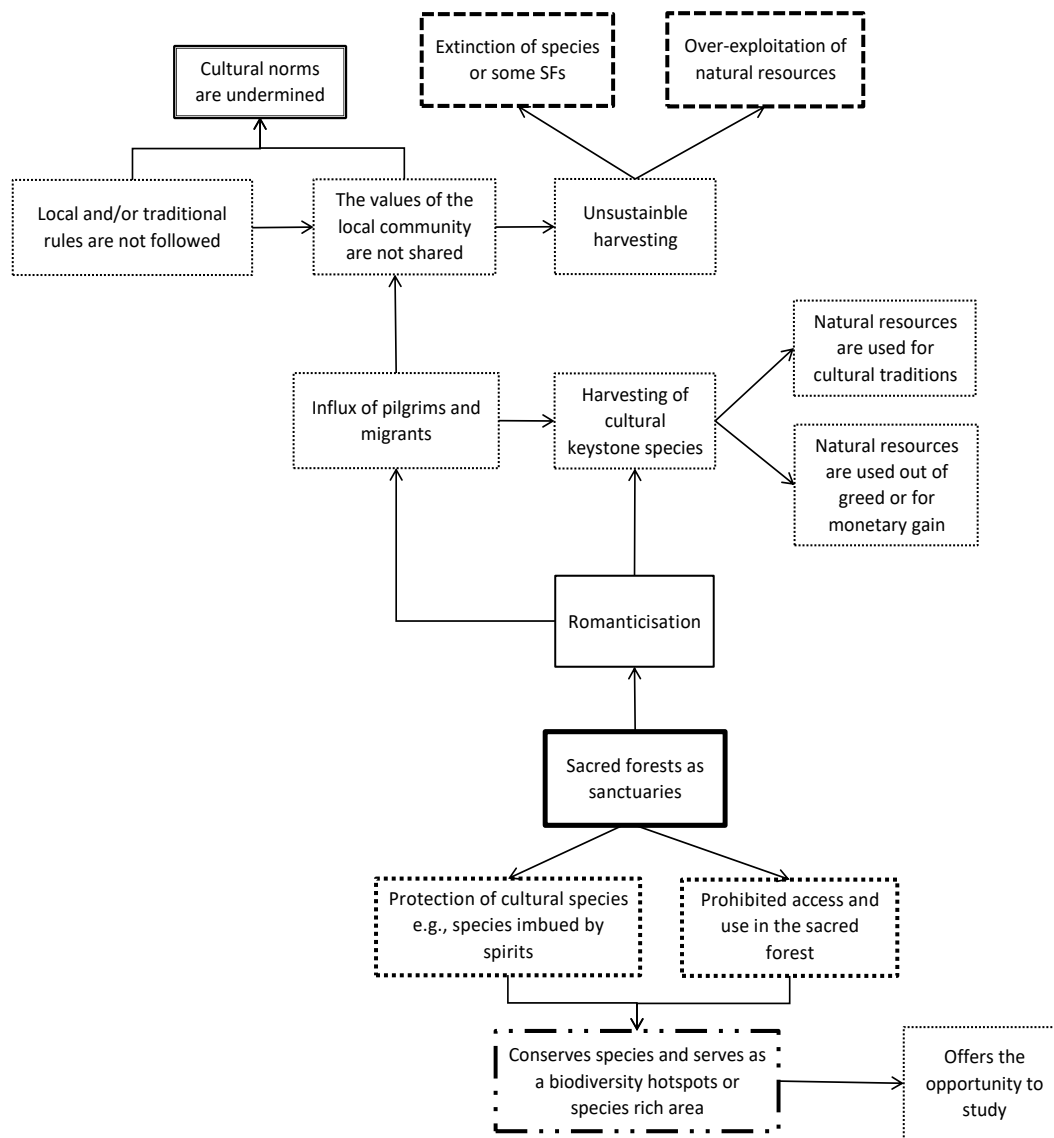


Figure 1.5. Reasons for the continuity of SFs as sanctuaries and the threats undermining this attribute.

Figure 1.5 also illustrates that some beliefs protect particular species found in SFs that are considered unlawful to harvest or hunt (Ejikeme and Okonkwo, 2022). Some plants and animals represent cultural values based on sacred religious beliefs which contribute to the biocultural diversity of SFs (Mjoli, 2017; Ballullaya *et al.*, 2019). Figure 1.5 demonstrates some species are considered embodiments of ancestral spirits and gods, or that the gods reside amongst the forest trees which requires that the forest remains undisturbed in honour of the gods (Chandran and Hughes, 2000). As such, some SFs have been identified as local biodiversity hotspots, i.e., areas of rich biodiversity, rare or threatened species, endemic species, or areas with threatened habitats (Reid, 1998; Myers *et al.*, 2000), due to the associated cultural and spiritual beliefs and values (Khan *et al.*, 2008; Ormsby, 2013). Some SFs harbour richer biodiversity than their surroundings (Dudley *et al.*, 2010). For example, many of the plants and animals that SFs harbour are

endemic (Kamga-Kamdem, 2010), and are sometimes only found in SFs (Bhagwat *et al.*, 2005; Khan *et al.*, 2008). The Feng Shui woods in Hong Kong contain diverse tree species including certain endemic species that only occur in the SF, and the Tembawang sacred forest in Indonesia is the only semi-natural habitat found in the lowland areas, which provides the only area to study and understand the biogeography of the original ecosystem (Dudley *et al.*, 2010). Moreover, some SFs contain species that are threatened or endangered in surrounding areas but largely appear in the sacred site (Kamga-Kamdem, 2010). For example, threatened tree species were abundant in the SF of Kodagu (India) as compared to the nearby forest reserve (Dudley *et al.*, 2010). Given the biological importance of some SFs, Figure 1.5 indicates that SFs provide an opportunity to study, understand and develop strategies to prevent or curb the loss of species, and ecosystem diversity (Wild *et al.*, 2010). Scholars such as Oviedo *et al.* (2007), Kamga-Kamdem (2010) and Verschuuren (2010) consider SFs as genetic reservoirs or gene pools, valuable for ecological research because (1) they provide genetic material that can be used as indicators to assess the conservation value and (2) their potential for the rehabilitation and restoration of degraded areas or ecosystems (Barrow, 2010; Shengii, 2012).

Figure 1.5 also illustrates how romanticisation has undermined SFs as sanctuaries for biodiversity. First, the use of cultural keystone species whereby many plant species are used for religious festivals or rituals (Garibaldi and Turner, 2004). As a result, Ballullaya *et al.* (2019: 7) shared that in some instances “the spiritual and conservation outcomes of the SGs contradict” because some cultural practices or beliefs adversely affect biological diversity. Likewise, the hunting of specific wildlife species for cultural purposes has also endangered some species or further threatened already endangered species (Chandrakanth *et al.*, 2004). The romanticisation of SFs can also be noted regarding the exploitative use of species for monetary gain or out of greed (Lawes *et al.*, 2004; Kandari *et al.*, 2014; SAHO, 2019). For example, there has been a decline in sandal (*Santalum album*) in India, particularly in the Himalayan region, because of greed (Kandari *et al.*, 2014). The exploitation of medicinal plants has had detrimental effects on the integrity of some SFs, i.e., the endangerment and extinction of some species in the forest (Chandrakanth *et al.*, 2004). Figure 1.5 illustrates a second driver concerning the romanticisation of SFs. Pilgrims or outsiders visit the SFs but often do not share the same cultural beliefs or spiritual values as the local people (Nyamweru and Kimaru, 2008; Mahaseth *et al.*, 2023). Hence, the likelihood of unsustainable practices increases (Roux *et al.*, 2022). As such, the romanticisation of SFs and their local or indigenous communities as environmental agents needs to be acknowledged.

1.3.4. The influence of economic dynamics on sacred forests conservation

Figure 1.6 illustrates the negative and positive outcomes of tourism-based economies on SFs. First, the effects of uncontrolled tourism or ‘ecologically unfriendly’ tourism may negatively affect religious and spiritual practices (Ormsby, 2013). For example, in Northern California, the development of a ski resort made public the location of the Winnemem Wintu sacred spring which resulted in an unwelcome ‘new age’ of spirituality seekers (Verschuuren, 2010; Ormsby, 2013). In contrast, some tourism initiatives around sacred sites have proven beneficial (Verschuuren, 2010). For example, the socio-cultural benefit of the Tafi

Atome Monkey Sanctuary in Ghana encouraged the villagers to practice and display their culture in the form of dance, drumming and storytelling, for tourists to view and participate in (Ormsby and Edelman, 2010). The outcome of the monkey sanctuary in Ghana strengthened traditional cultural practices and beliefs at a crucial time, i.e., when they were vulnerable and eroding (Ormsby and Edelman, 2010).

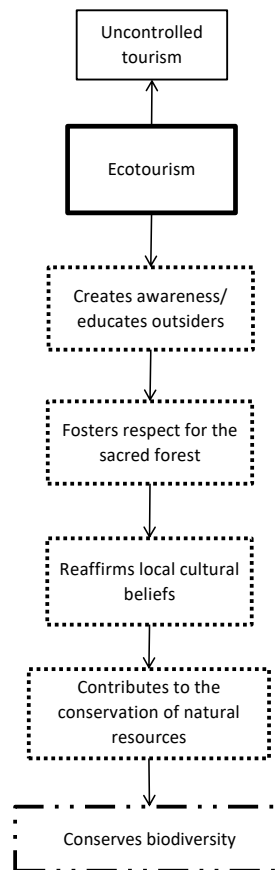


Figure 1.6. Reasons for the continuity of SFs on an economic and legal basis and the threats that undermine these.

Figure 1.7 indicates two main negative implications (1) the rise in individualism, i.e., a great interest in individual property and money as a consequence of poverty or profit-driven mindset, amongst community members of some SFs that undermine traditional value systems (Kamga-Kamdem, 2010), and (2) some communities are subjected to self-interest and unsustainable practices whereby exotic species are considered important for income generation (Khan *et al.*, 2008). On the other hand, Figure 1.7 indicates that in some cases locals are incentivised to practice sustainable use.

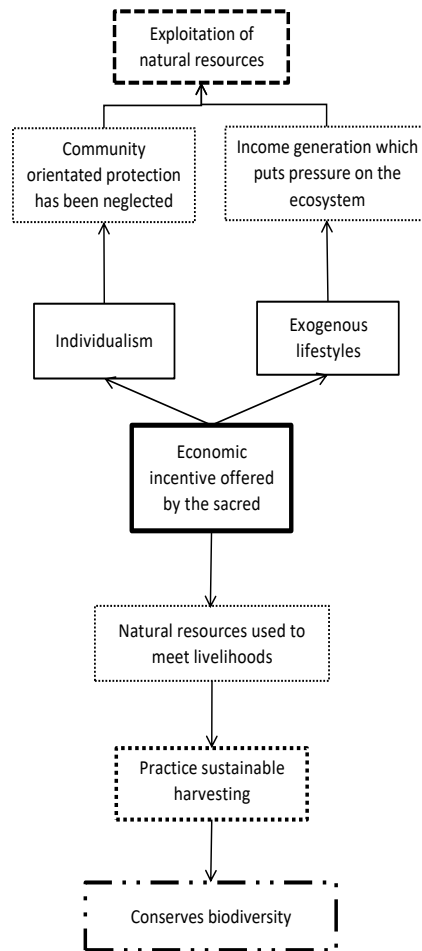


Figure 1.7. Economic incentives serve either selfish interests or incentivises sustainable use.

1.3.5. Community involvement and legal recognition of sacred forests for biological conservation

Strong religiocultural beliefs play a significant role in ensuring that laws protecting SFs are not broken, (Dorm-Adzobu *et al.*, 1991; Roux *et al.*, 2022). In some communities, villagers also play a crucial role in protecting SFs from nonbelievers or outsiders, therefore, Dorm-Adzobu *et al.* (1991) claimed that community vigilance is more effective in enforcing regulations as opposed to formal or active policing. Uncertainty regarding the legal ownership of a site could affect the traditional authority or may “take management control away from community members” who otherwise serve as the custodians of the site (Ormsby, 2013: 196). Figure 1.8 indicates four factors that threaten the preservation of SFs that need to be considered when incorporating these sites into protected area networks. First, the inclusion of SFs into formal or national PA networks may compromise or undermine spiritual values (Ormsby, 2013; Roux *et al.*, 2022), especially if locals who depend on the forest are sidelined. Second, most governments' lack of alignment with traditional values (lack of personal belief in local traditional religious or cultural practice) and lack of understanding of spiritual values, contributes to poor planning and potential conflict between governments and local people. This is evident in the Niger Delta, Nigeria, where the local communities are intrinsically connected to the surrounding wetlands, and their worldviews and interests differ from the state, i.e., the state is concerned with economic growth, whilst the community considers the land as a spiritual

entity (Anwana *et al.*, 2012). Third, given that some SFs are not protected by the government nor have any legal status attributed to them (Mahaseth *et al.*, 2023), legal backing could support multiple values and uses of SFs. This can be done by embracing traditional beliefs and values as part of effective conservation strategies (Kamga-Kamdem, 2010; Nganso *et al.*, 2012; Mahaseth *et al.*, 2023). While certain traditional authorities are believed to possess complete autonomy, in other communities the decision-making power is under the control of the municipal administrations (Pandey and Rao, 2002), who have been accused of undermining the autonomy of the traditional or local government systems or institutions (Pandey and Rao, 2002; Chandrakanth *et al.*, 2004; Kandari *et al.*, 2014; Kelly, 2015). Therefore, policies, government and other institutions need to consider traditional spiritual motivations behind the conservation of some forests, as opposed to the claim that conservation is solely motivated by direct, material or economic benefit (Byers *et al.*, 2001). Fourth, care needs to be taken during the documentation of these sacred sites given that certain aspects of the culture are deemed guarded secrets or known only by their custodians (Garcia-Varela, 2007; Verschuuren *et al.*, 2010).

Some SFs have gained legal recognition which includes either being located in or partially incorporated into PAs, e.g., the Kakadu National Park, Australia, whilst some SFs are located in conservation buffer zones (Shengii, 2012). Their legal recognition often faces challenges. Figure 1.8 highlights two key ways to deal with such challenges. First, collaboration or co-management can help in building alliances and bridging the gap between different constituencies in support of the conservation of SFs (Ormsby, 2013; Mahaseth *et al.*, 2023, which aligns with the principles of biocultural conservation (Gavin *et al.*, 2015). Reserve managers and custodians from some indigenous communities have adopted joint management models for forest reserves and SFs (Shengii, 2012). Informants from four villages located in the Xishuangbanna Biosphere Reserve of Yunnan, China, reported that there were no reports of cutting, harvesting or hunting by locals from the communities, which indicated that community participation in SF management within reserves or protected areas is possible (Shengii, 2012). A bottom-up approach advocating for the devolution of control and management of forests and their resources to local chiefs and local communities is necessary, coupled with a change in government and state authority attitudes towards traditional conservation practices (Yuan *et al.*, 2019). Engendering local participation should also help empower local chiefs or traditional leaders. Second, OECMs as defined by the CBD in 2018, i.e., areas outside the protected area network that are governed or managed, and in situ conserve biodiversity (MacKinnon, n.d), align with SFs in their role as community-managed or conserved areas of biocultural diversity. A workshop on OECMs for North Africa and Lebanon in 2020 recognised that SNS have conservation value and that SNS are included as locations of potential OCEMs. Legal recognition of SFs and strengthening of traditional laws or regulations is essential to enhance their protection and the continuation of traditional prescripts in using SFs (Nganso *et al.*, 2012). Apart from the legal recognition of SFs, i.e., to be recognised as property of the local community, or to be legally recognised as community sites or state-protected areas (Kamga-Kamdem, 2010), understanding traditional beliefs, values and uses is needed for effective conservation strategies (Byers *et al.*, 2001).

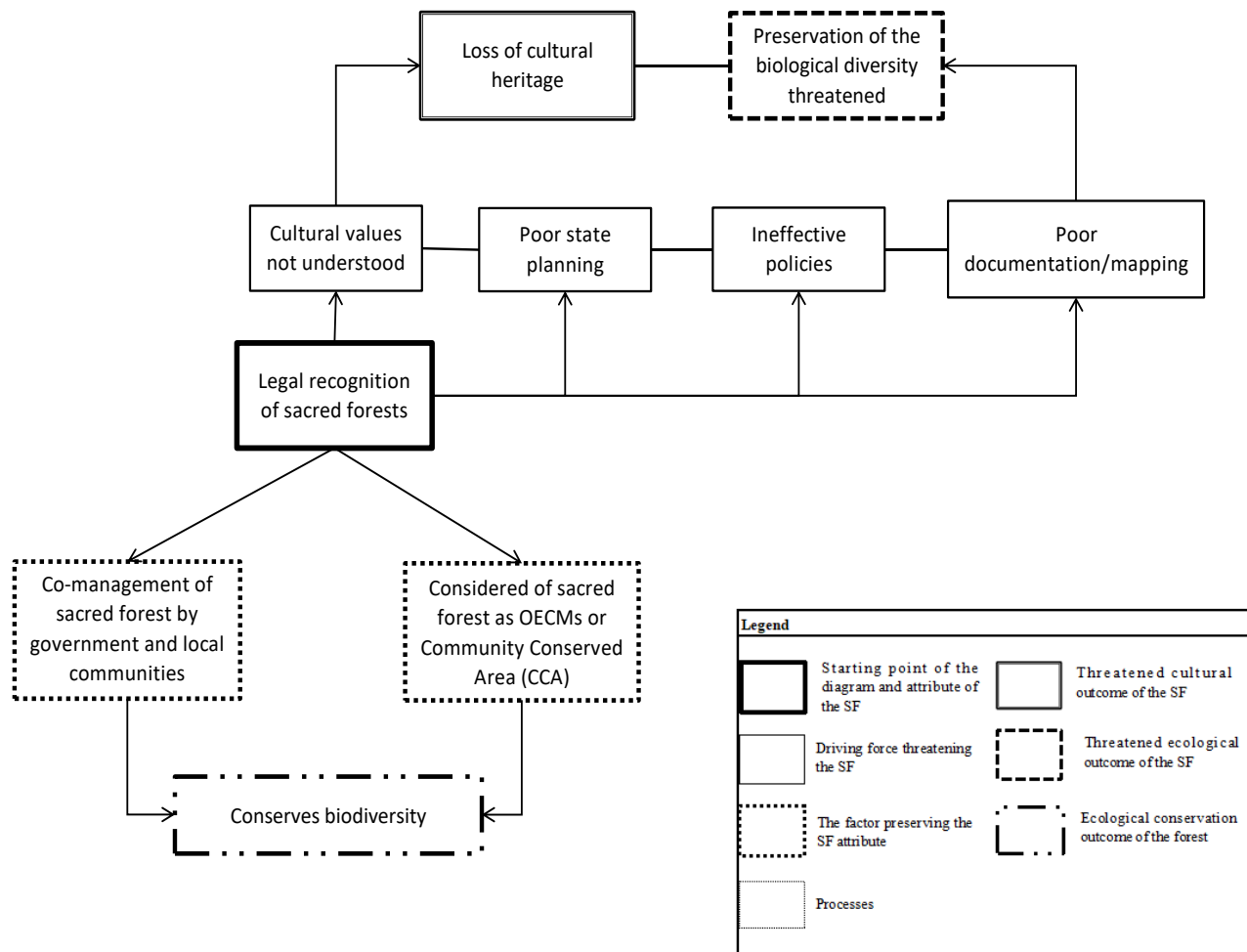


Figure 1.8. Reasons for the continuity of SFs on an economic and legal basis and the threats that undermine these.

1.4. Theoretical framework: a biocultural approach to conservation

1.4.1. Links between nature and culture

Initially, the idea that biodiversity and cultural diversity being linked was not recognized. Culture and sciences were treated separately up until the late 1980s, even within organisations like the United Nations Educational, Scientific and Cultural Organization (UNESCO) (Bridgewater and Rotterham, 2019). The link between biological and cultural diversity was initially made by anthropologists like Edward Sapir and Benjamin Whorf. Their ethno-linguistic studies revealed that language reflects locals' cultural interests in certain environmental features, which illustrated how language plays a mediating role between people and their local environment. Later Alfred Kroeber, also an anthropologist, focused his studies on relationships between Native American cultural areas and natural areas. He found significant links between cultural groups and their environments. Kroeber (1963 cited in Maffi, 2005) claimed that the relationships between cultural and biological diversity is central to better understanding nature. Researchers began to explore how humans interacted with and influenced the natural environment. As such, there was a growing awareness of the need to recognise that cultural diversity such as traditional knowledge and practice shapes the landscape over time.

During the 1970s the importance of indigenous people and local communities (IPLCs) for biodiversity conservation became increasingly mentioned. The Declaration of Belem (1988) served as a turning point in recognising this inextricable link and became increasingly taken up by different agreements (Bridgewater and Rotterham, 2019). A decade later, the Convention on Biological Diversity (CBD), a global forum to discuss biodiversity conservation, also placed emphasis on respect and preservation of traditional knowledge and practices of IPLCs that contribute to conservation and sustainable use (Bridgewater and Rotterham, 2019). These discussions laid the foundation for addressing the rapid loss of cultural and biological diversity, drawing attention to the need for integrated approaches, i.e., integrating insights from various fields such as anthropology, ethnobiology, and social-ecological systems thinking.

1.4.2. Defining biocultural diversity

Biocultural diversity was coined at the Declaration of Belem in a UN publication by Posey (1999 cited in Maffi, 2005), which denotes the link between biodiversity and human diversity. Posey (1991 cited in Maffi, 2005) emphasised that IPLCs through their knowledge, manage and protect biodiversity, highlighting the reciprocal relationship between culture and the natural environment. Maffi (2005) also emphasised the importance of language and its role in the transmission of cultural knowledge, values and practices, wherein humans are not seen as separate from nature. This understanding is critical in this study as it helps frame the relationship between the local communities and their SFs. Additionally, Maffi (2005)'s definition acknowledged the long history of human interactions to the environment, highlighting the place-specific context of these relationships over time that are constantly interacting with the environment, and linkages to co-evolution between cultural and biological diversity as humans

modify and adapt to nature through various practices and understandings. Biocultural diversity primarily focused on spaces often inhabited by indigenous or traditional communities as areas of highest biodiversity (Pretty *et al.*, 2001; Mathez-Stiefel *et al.*, 2007; Plieninger and Bieling, 2012).

Given that the initial focus of the empirical demonstrations of the biocultural diversity link was mostly based on ethnolinguistic studies of co-evolution, Loh and Harmon (2005) developed a biocultural diversity index. Their index focused on three components (biological, linguistic and cultural diversity) to identify correlations and overlaps among regions with high biodiversity, linguistic and cultural diversity that they mapped globally. The interdependence and co-evolution of biological and cultural diversity has led scientists and researchers to understand that there are not only similar patterns in diversity and geographic overlaps but overlapping distributions of shared threats to cultural and biological diversity (Gavin *et al.*, 2018). Rapid transformations of biophysical and sociocultural conditions accelerates some of the shared threats such as modernisation, habitat destruction and loss of traditional beliefs and values (Mafii, 2005), that contribute to the loss of biological and cultural diversity. The BCD framework aids in identifying and understanding the interconnected challenges related to biocultural conservation. Recognising these threats is essential in this study to understand the pressures faced by SFs in South Africa.

The physical overlaps also revealed biodiversity as a source of raw materials and benefits for communities and future generations upon which they depended (Cocks, 2006). As such, Cocks (2006) emphasised the significance of not only considering the cultural functions and values of natural resources integral to the community's cultural heritage, but also considering the resources that support their needs and livelihoods. The recognition of raw materials resulted in researchers across various fields to increasingly understand the detrimental effect of socio-economic influences (e.g., agricultural expansion, globalisation, etc.) on biodiversity and land use patterns (Posey, 1999; Loh and Harmon, 2005; Cocks, 2006). The relevance of biocultural diversity became clearer (as it was understood that nature represented “living expression” inherited from our ancestors and passed down to our descendants), revealing that nature is heavily influenced by human activity, e.g., agricultural expansion, industrialisation, management of habitats or species, etc. (Bridgwater *et al.*, 2007). The BCD approach affirms that biodiversity cannot exist without the societies that sustain, create, or diminish it.

Furthermore, the physical overlaps found between the geographical distribution of linguistic groups and biological richness, revealed that these correlations differed based on scale (Mathez-Stiefel *et al.*, 2007). A study in Bolivia revealed that “natural, historical, cultural and socio-political factors affect these kinds of diversities and shape the relationship between them”, which contributes to the differences (Mathez-Stiefel *et al.*, 2007: 68). These differences resulted in the consideration and development of different proxies by Mathez-Stiefel *et al.* (2007), marking a shift from linguistics to ontological approaches to biological diversity. They recognised that BCD goes beyond language and acknowledged the non-linguistic transmission of knowledge and practices. Their understanding of co-evolution between nature and society extended to the way people conceptualised, understood and acted upon their natural

environment, i.e., based on how people perceive, value and give meaning to their local environments. As such, Mathez-Stiefel *et al.* (2007) proposed a more comprehensive proxy for cultural diversity integrating cultural facets to better understand the biocultural link at a more local level. As ontological aspects were considered to understand nature–society relationships, it also provided insight into “action-guiding values, norms, practices, customs, rituals, beliefs, including the discourse of community members daily life” (Mathez-Stiefel *et al.*, 2007: 71).

Biocultural diversity as an approach was also taken up by Hill *et al.* (2011), who focused their research on community-based and place-specific dimensions of biocultural diversity as deeply rooted in the knowledge-practice-belief systems of local communities. Through case studies of specific communities, their perspectives highlighted the role of traditional ecological knowledge (TEK) and cultural heritage in sustaining ecosystems and how cultural traditions and practices shape biodiversity outcomes. They emphasised the significance of inclusive and participatory efforts to understand IPLCs as stewards of biocultural diversity, which paved the way forward for rights-based conservation approaches. The rights-based conservation approaches concur with Pretty *et al.* (2001), whereby they acknowledged the significance of indigenous land rights and community-based conservation that focuses on both biodiversity and cultural diversity. As traditional values have gained more recognition internationally, the approach has been used to defend the rights of indigenous people and their ownership and management of their lands as per the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and CBD because of its focus on conservation actions that uphold and protect rights to self-determination and land and resources (Pretty *et al.*, 2001; Gavin *et al.*, 2018). The ability to secure the rights of IPLCs, including the importance of ensuring other aspects of social justice, is pivotal to the approach as its foundation is based on inclusive governance and incorporating multiple worldviews (Gavin *et al.*, 2018). This study builds on their work, investigating how the locals knowledge-practice-belief systems contribute to SF conservation. Additionally, the rights-based approach inherent in BCD aligns with the study's goal to advocate for community-led conservation strategies.

In response to the shift in thinking of BCD approach to biological conservation began to develop. This shift represents a broader, transformative framework- which includes various cultural facets. Díaz *et al.* (2015) used participatory methods to broaden the scope of biocultural diversity beyond its earlier focus from linguistic, cultural dimensions and indigenous rights to include ecosystem services as a bridge between biological and cultural systems. They incorporated a social-ecological system approach and emphasised the dynamic interdependence between cultural values, practices and biodiversity, and consequent relationships that contribute to the well-being of people and the resilience of ecosystems. Their work also emphasised the policy relevance of biocultural diversity, which was tied to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), to strengthen knowledge foundations for better policy through science, by linking ecosystem services frameworks and SES to maintain cultural diversity for management of the ecosystem and resilience. Their work informs this study's analysis of SFs as SES by integrating cultural heritage with ecological

resilience. As the biocultural diversity approach describes indigenous people and their use and management of natural resources (Cocks *et al.*, 2016), it underscores the adaptive nature and resilience of cultural systems that successfully conserve biodiversity-rich sites for generations.

Over time it became increasingly understood that knowledge is transmitted not only through language and is also shaped and viewed differently. This understanding was expressed through the shared framework which includes ontological (recognizing diverse worldviews and ways of understanding human-nature relationships, rooted in specific cultural contexts), epistemological (different ways of learning and the integration of different knowledge systems) and ethico-political (addressing power relations, governance and social justice to ensure equitable participation in decision-making and conservation efforts) dimensions. Mercon *et al.*'s (2019: 2) highlighted a shift in the biocultural diversity paradigm away from the “crisis narrative”, because “recent developments have significantly expanded its meanings to include other social and ecological contexts”. Building on SES with greater focus on cultural aspects that mediate the relationship between people and nature by recognising the impact of human activities on the loss of biodiversity and the recognition that solutions for environmental problems that are rooted in social, economic and cultural systems (Mercon *et al.*, 2019). The importance of cultural diversity, particularly for biodiversity conservation lies in the fact that different cultures perceive, use and appreciate biodiversity differently because of their unique cultural heritage and experiences (Bridgewater and Rotterham, 2019). This understanding allows for the development of resource management frameworks (Gavin *et al.*, 2018), that offer a diverse range of solutions to address threats to biological and cultural diversity loss. Maffi (2005) also shared how the approach enables the development of strategies and measures to preserve as well as revitalise biological and cultural systems that sustain or support one another.

1.4.3. The biocultural diversity approach in conservation

As Pretty *et al.* (2009: 100) reported “any hope for saving biological diversity is predicated on a concomitant effort to appreciate and protect cultural diversity”. A decline in cultural diversity undermines the distinct heritage and experiences of human interactions that change human well-being and threatens the sustainability and conservation of natural resources (Cocks, 2006; Gavin *et al.*, 2018; Bridgewater and Rotterham, 2019). This multifaceted approach defines conservation actions that contribute to incorporating and maintaining both the natural environment and socio-cultural components of interdependent and interacting social-ecological systems (Gavin *et al.*, 2015). As such, the approach offers that cultural diversity supports human interactions that contribute to sustainability through a variety of knowledge systems, practices of social cohesion and ideas of innovation that foster adaptability and resilience. In this study, the biocultural diversity approach was used to aid in the analysis of the role SFs play in maintaining biodiversity and cultural practices. This approach, grounded in SES thinking, helped to explore SFs’ roles in both biodiversity conservation and cultural heritage preservation. It allowed for a more nuanced understanding of how cultural values influence conservation strategies of SFs that are deeply embedded in local heritage. The approach also brings to the forefront

the deep motives and aspirations of local communities, which offers a moral and ethical argument for SF conservation. It goes “beyond understanding the instrumental-intrinsic value dichotomy that characterises value discourse in conservation to capture how relational values mediate the values that people place on nature” (Ihemezie *et al.*, 2023: 2087). The approach helps to understand the deep connections that local communities have to their landscape, which in turn influences notions of identity, heritage and local indigenous systems of stewardship which are founded on socio-cultural and spiritual values (Kurashima *et al.*, 2018), and therefore, enables the ability to capture the multi-diverse relationships between local communities and their sacred natural spaces.

This study has adopted the biocultural diversity approach to conservation to understand the biocultural relations of local communities (to understand the values, knowledge and actions that contribute to protecting biodiversity). The application of the biocultural diversity approach in the field of biological conservation will help to recognise and develop appropriate management strategies through integrated perspectives to enhance both conservation efforts and sustainable development. The biocultural approach provides a foundational framework for this study, guiding the exploration of the contributions of SFs to biodiversity conservation and the preservation of cultural values. The aim of this study resonates with the principles of the biocultural approach in understanding place-based relationships and social-ecological systems grounded in local priorities and indigenous knowledge. In this way, it extends and includes the spiritual dynamic and its role in influencing interactions with nature to better determine how best to strengthen conservation efforts. Through the recognition of cultural and spiritual values associated with biodiversity, it has led to community-based natural resource management practices. For example, SFs need to be conserved for their complex, socio-cultural significance that support local livelihoods and serving as vital reference points for cultural identity (Dudley *et al.*, 2010; Shengii, 2012). Whilst SFs are considered a form of biocultural conservation (Singh *et al.*, 2010; Pradhan and Ormsby, 2020), not all indigenous peoples are considered conservationists by nature (as pointed out in Section 1.1.6.3). Sacred forests also experience different types and levels of threats (Pradhan and Ormsby, 2020). This may result in the broader set of cultural values being compromised and, in some instances, lost (Putney, 2005; Brosius *et al.*, 2010). The threats that the SFs face are often local, i.e., the “social and ecological changes are felt at a local level” (Gavin *et al.*, 2015: 142), but the drivers of change occur at multilevel institutions and across various stakeholders. The biocultural approach, therefore, allows for the distinction to be made if the same forces, e.g., development, market integration, resource extraction, increasing fundamentalism or religious conversion, that are responsible for biodiversity loss, are responsible for the loss of culture, or whether there are different forces at play (Brosius *et al.*, 2010). This thesis explored the challenges faced by the SFs. As this thesis investigated whether SFs are tools for biological conservation, the application of the biocultural diversity approach assisted in understanding the multifaceted threats to both ecological and cultural integrity. Consequently, the study identified the need for an integrated perspective for conservation that recognises the complex

relationship between ecological and cultural systems. By examining these dimensions, the research highlights how cultural and ecological knowledge systems co-evolve, influencing SF management.

Biodiversity conservation should no longer be decoupled from “connecting values that capture people's relationship with nature and with other users of nature” (Ihemezie *et al.*, 2023: 2075). Given that the BCD approach recognises that conservation outcomes are shaped by the place-specific histories and socio-political dynamics of each place, within the South African context, the biocultural diversity approach provides a comprehensive framework for understanding and addressing conservation efforts “embedded within particular social-political contexts” (Gavin *et al.*, 2015: 143). As such, the biocultural approach is sensitive to its social and political contexts, particularly relevant in understanding the efforts made by IPLCs to maintain and preserve areas of high biodiversity, and in understanding how shifts in traditions influence current conservation practices. By adopting a biocultural diversity approach, the study not only contributes to the understanding of the role of SFs in biocultural conservation but also provides insight into how the approach can be used or applied to people-centred conservation methods, like co-management and community-based conservation (Gavin *et al.*, 2018). Biocultural approaches focus on building partnerships and long-term relationships, which can reduce conflicts and enhance conservation effectiveness, it also defends indigenous rights towards preserving biocultural landscapes and resources through practical applications in law and policy (Jonas *et al.*, 2010; Gavin *et al.*, 2015).

By acknowledging diverse worldviews and various knowledge systems, the approach enhances human and environmental adaptability to change to support more effective conservation (Gavin *et al.*, 2018). As a result, the biocultural diversity approach can enhance the adaptive capacity of conservation efforts through the inclusion of various stakeholders and integration of knowledge systems (Gavin *et al.*, 2018). Such an integrative approach to conservation will require the need to balance shared governance and stakeholder objectives. The biological approach to conservation placed emphasis on knowledge that is co-created, including its relevance for the governance of biodiversity at all levels (Mercon *et al.*, 2019), to contribute to the resilience and management of ecosystems have influence on international policies as the approach provides context-specifics. Given the holistic approach, this study has also incorporated the following terms:

- Biocultural landscape- a geographic space in which nature and people coexist and co-evolve through long-term human-nature interactions, including spiritual elements that define nature and are shaped by nature.
- Biocultural system- integrated systems of cultural heritage and biological diversity that interact with one another within the landscape.
- Biocultural associations/relations- the relationships and interactions with biological diversity that are deeply influenced by one's culture.

- Biocultural heritage- “results from interactions between people and nature at a given time in a given place” (Bridgewater and Rotherham, 2019: 302).
- Biocultural integrity- the preservation of the interconnectedness that occurs in social-ecological systems wherein cultural and biological diversity are preserved.

1.5. Problem statement

Sacred forests (SFs) in South Africa represent unique biocultural systems that have historically contributed to the conservation of biodiversity and cultural heritage through community governance, traditional ecological knowledge (TEK) and spiritual values. Despite their ecological and cultural significance, SFs remain undervalued in formal conservation frameworks and, as in South Africa, are not yet formally recognised as Other Effective Area-Based Conservation Measures (OECMs). While national-level policy discussions have begun exploring the role of OECMs, their formal recognition and inclusion within conservation policy and planning frameworks, such as the protected area and conservation estate under South African law, or the National Environmental Management: Protected Areas Act (NEMPAA), remains absent. This lack of formal recognition, combined with pressures from religious conversions, colonial and Western influences, land-use changes, exploitative resource extraction and socio-political transformations, places SFs at risk of ecological degradation, erosion of cultural practices and weakening of community-based governance. Communities that have historically served as custodians of these forests are increasingly marginalised in decision-making processes regarding their management, leading to a disconnect between local knowledge systems and broader conservation policies.

Existing research on SFs has predominantly focused on discrete aspects resulting in a fragmented understanding that overlooks the interplay between ecological integrity, cultural practices, governance and historical-political contexts. This knowledge gap limits both theoretical understanding and practical policy approaches, preventing the full integration of community-centered practices into conservation strategies that could safeguard both biological diversity and cultural heritage in a world increasingly shaped by monocultural dominance. Therefore, there is a critical need for a systemic, interdisciplinary investigation of SFs that situates them within the broader social-ecological, historical and political landscapes, while providing practical insights for policy frameworks that formally recognise and support these community-led biocultural systems as OECMs.

1.6. Purpose, aim and objectives

This study proposes a novel approach to recognising the significance of SFs, which have been undervalued and overlooked by the international community. Sacred forests are not primarily conservation areas, rather they exist for spiritual and cultural reasons. Consequently, SFs align with the concept of OECMs (Section 1.1). However, the South African government has not yet classified and included OECMs as a formal conservation category. This research highlights the importance of SFs in conserving biodiversity under community governance, cultural values, TEK and traditional authority by

focusing on the sociocultural, political, ecological and ethnobotanical aspects. Understanding these complex, social-ecological systems may aid in the development of additional policies. This was also highlighted during a meeting in November 2023 that was hosted by the South African National Biodiversity Institute (SANBI) and the Department of Forestry, Fisheries and the Environment (DFFE) to recognise and secure OECMs and their contribution to (1) the South African conservation estate as protected and conservation areas (PACAs) and, (2) target 3 of the Post2020 Global Biodiversity Framework (IMEL, 2023). The growing international interest in SFs as a unique form of conservation is attributed to their long-term existence and their successful preservation of both nature and culture in some contexts. Sacred forests offer opportunities for biocultural conservation because they integrate cultural practices with biodiversity protection, whereas the traditional conservation model adopted by PAs often seek to minimise or avoid human interference. Furthermore, within the South African context, this study provides a unique way forward for biocultural conservation given that SFs and respective communities that govern and use them have been subjected to political, socioeconomic and cultural influences, particularly in KwaZulu-Natal.

As this study navigates the interrelationships between ecological and cultural diversity through a biocultural framing, it offers insight into the development of inclusive, multi-value forest management strategies by local, national and international institutions, as well as solutions tailored to the specific needs of each forest. The novelty of this study also lies in the diverse and multiple methods employed due to its interdisciplinary nature which offer a holistic view of these enduring and resilient biocultural communities. Furthermore, the inclusion of various stakeholders aid in bridging the gaps between the different constituencies in providing an operating space to develop agreed-upon, longer-term plans for the SFs. Thus, the study recognises and includes the biocultural heritage and biophysical components that are interdependent in social-ecological systems as a unique form of OECMs. The study is aimed to determine whether the two SFs serve as a tool for promoting biodiversity conservation, and in underpinning the integrity of local cultural heritage. To adequately address this aim and its contributions, the objectives of the study were to:

1. Explore the historical context of the two communities and their relationships with the SFs to better understand the biocultural associations and disassociations or fragmentations.
2. Determine in what way local beliefs, values and uses affect the integrity and condition of the SFs.
3. Determine the current ecological condition and integrity of the sacred and assess whether it has changed over the recent past. If there have been changes, describe what these changes are and what caused them?
4. Appraise how SFs can be best protected and managed.

1.7. Contributions of the study

The broader scholarly debate on the role of SFs in biodiversity conservation has centred on whether they should be recognised as formal conservation measures or valued primarily as cultural institutions. Global debates have increasingly focused on SF potential recognition as OECMs and on the broader role of cultural traditions in conservation. While existing research has largely focused on whether SFs should be recognised as conservation areas, Sinthumule (2024) highlights that only a small proportion of African studies focus on South Africa, revealing a significant gap in research on SF conservation in this context. Previous research on SFs in South Africa has primarily examined discrete aspects, often with a narrow focus. Whilst these studies provide valuable insights, they remain thematically narrow. There is a lack of systemic and interdisciplinary research that integrates ecological, cultural, political and governance dimensions while situating SFs within global conservation frameworks. This study addresses that gap by broadening the scope through a holistic, interdisciplinary analysis.

This study addresses these gaps by offering four novel contributions: (1) systemic, comparative, interdisciplinary analysis by examining SFs across two communities through the use of a rigorous mixed-methods approach. It integrates ecological condition, cultural practices, governance, and political history, thereby offering a holistic understanding of SFs as biocultural systems; (2) by positioning SFs within global conservation debates, the study situates SFs explicitly within the OECM framework, linking biodiversity conservation with cultural heritage and community agency. It highlights both the opportunities and tensions of repurposing cultural traditions for global conservation aspirations, showing that while SFs contribute to conservation, they do not always align neatly with international conservation agendas; (3) it provides substantial empirical evidence on two under-researched areas, offering rare documentation of their ecological condition, cultural practices and governance systems; (4) by offering applied insights for inclusive and multi-value forest management. The interdisciplinary and mixed-methods approach not only deepens the theoretical insights but also generates knowledge directly relevant to local communities, traditional authorities and policymakers. The study highlights pathways for aligning cultural governance systems with national and international conservation institutions, while remaining attentive to the specific socio-cultural and ecological needs of each forest.

Drawing on long-term, community-centred engagement, the study provides insights on how cultural values, beliefs, and practices are reshaped by historical, political, and socio-economic dynamics, and how these changes affect forest integrity. Taken together, these contributions demonstrate the study's originality in its biocultural, interdisciplinary, and comparative scope. This study offers both practical insights for conservation policy and theoretical reflections that can inform both scholarship and conservation policy, on the limits of aligning cultural traditions with international conservation frameworks. More broadly, the thesis contributes to the growing body of research on cultural heritage and conservation in southern Africa by situating SFs within a biocultural diversity framework.

1.8. Thesis structure

The thesis consists of nine chapters. The first and second chapter provides an introduction to the study and methodological approach, respectively. Each of the results chapters (Chapters 3 to 8) are written in a stand-alone format. The final chapter (Chapter 9) provides an integrated synthesis of the findings as well as recommendations.

Chapters	Content
1	Introduces the research context that informed this study. The literature defines SFs, their sacred significance, forms of governance, uses, and their conservation impact in different contexts. This Chapter also outlines the biocultural approach in which this study is framed, the study's aim and objectives.
2	Describes the study's context and provides a background to the study areas. It also presents the method used to collect data and its analysis processes.
3 & 4	These chapters focus on the first objective, exploring the historical and cultural context of the community and the SFs, detailing the communities' cultural history and the establishment of the SF, ancestral beliefs, governance, and the impact of societal changes like Colonialism, Apartheid and Democracy on the biocultural communities. Chapter 4 examines how these resulting changes have affected traditional governance and beliefs
5 & 6	Addresses the second objective examining how local beliefs and values affect the integrity and condition of the SFs and the way forest use affects its integrity, respectively. Chapter 5 provides a detailed examination of the local community's beliefs, values and perceptions regarding the SF, and illustrates how beliefs and values have contributed to maintaining or restoring the biocultural integrity of the forest. Chapter 6 answers the second and third objectives concerning how the ecological condition has changed over the recent past. Chapter 6 illustrates the factors that have led to changes in forest use and the extent to which these changes have impacted the ecological condition of the SF. Chapter 6 also includes the analysis of the structural changes of the forest over the years to determine the ecological state of the forest as compared to the non-sacred forests.
7	This chapter also answers the third objective, focusing on the current ecological condition of the SFs. This chapter assesses the forest condition and the impact of disturbances on the SFs as compared to adjacent non-sacred forests, offering insight into the role of sacredness in conserving biodiversity and maintaining forest conditions.
8	Discusses the desired futures concerning challenges or consequences of the erosion of spiritual values, and its implications for SF preservation. The chapter also illustrates community responses to these changes, mitigation or adaptation efforts to changing circumstances, conservation strategies, policies, and educational programmes aimed at maintaining biocultural values and sustainable resource use.
9	A comprehensive conclusion is presented that synthesizes the findings from the results chapters,

	including the empirical contributions to understanding the potential of SFs for biocultural conservation in a changing society. The chapter also provides recommendations.
Appendices/ Annexes	Complementary information.

Chapter 2: Study areas and methods

2.1. Introduction

The research focuses on two sacred forests (SFs) to explore and understand the complex relationships between cultural beliefs, the use of SFs and their ecological integrity. Given that the study has been framed within a biocultural diversity context, a mixed-methods approach was adopted. Attempts were also made to gain a contextual understanding of the unique biocultural dynamics at play by exploring the relationship between sacredness and biodiversity conservation. As such the chapter begins with detailed descriptions of the geographical, ecological, cultural, and social contexts of the two study sites. The first site is located in the Drakensberg Mountains in Mazizini, and the other is located in the coastal region of Mabasa near Lake Sibaya.

Since the study is framed within the broader context of biocultural diversity, the study employs a comprehensive methodological approach. A mixed-methods design, combining both qualitative and quantitative techniques, enables the integration of various data collection and analysis tools. To ensure the validity and reliability of the findings, a triangulation approach is also used. Triangulation involves leveraging of multiple data sources, methods and perspectives to cross-check and verify the results (Heale and Forbes, 2013; Carter, 2014).

2.2. Background

With the assistance of Ezemvelo KZN Wildlife, seven potential sites within the province of KwaZulu-Natal (KZN) were listed, of which two sacred forests were chosen, one in Mazizini in the Drakensberg Mountains and one in the coastal region of Mabasa near Lake Sibaya (Figure 2.1). These sites were chosen due to their location outside of established PA networks on communal lands under Zulu Chieftaincy.

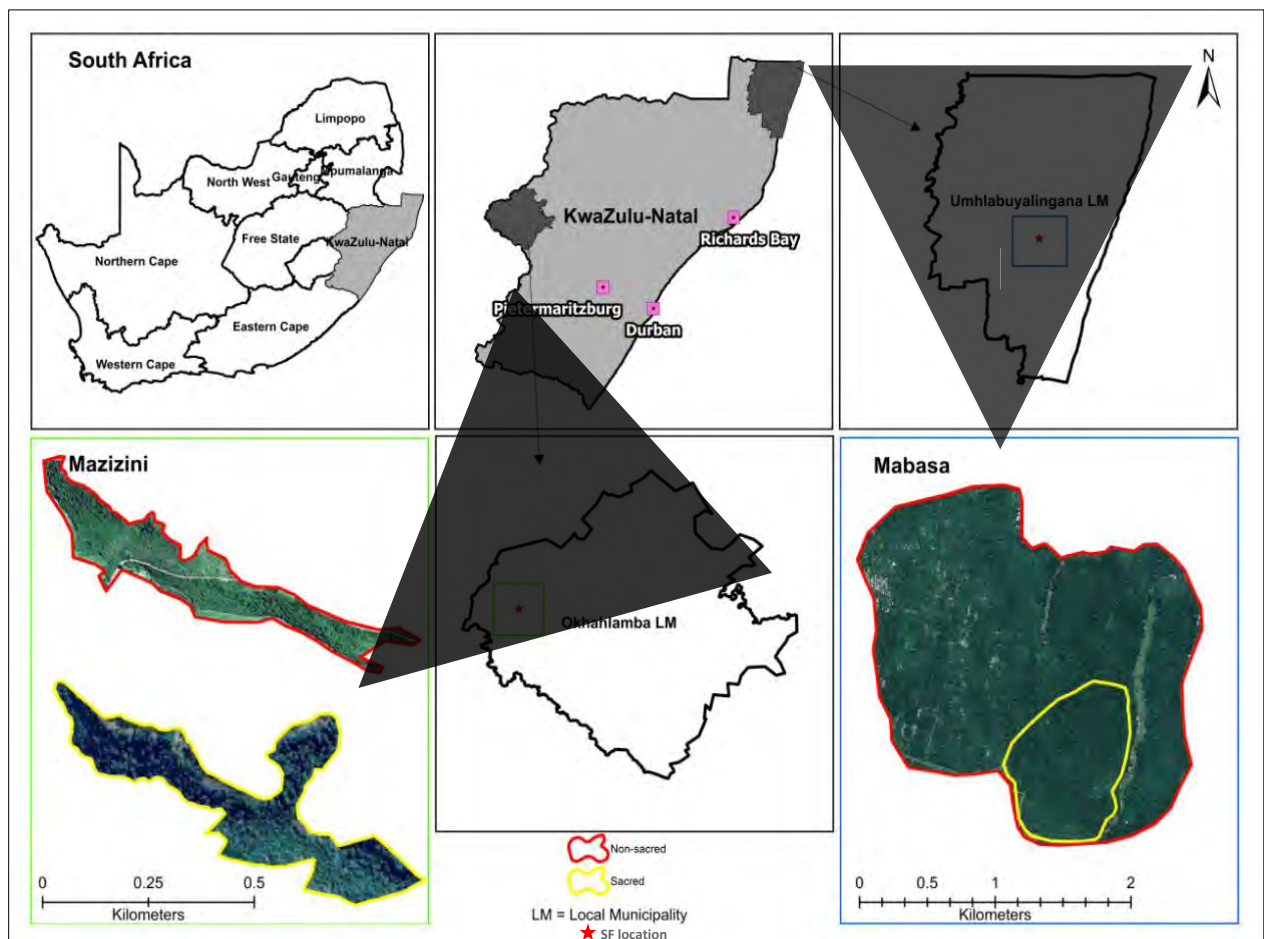


Figure 2.1. Location of Study Areas in KwaZulu-Natal province.

2.2.1. The “sacred” forest and the sacred Ndlankomo mountain in Mazizini

2.2.1.1. Location

The area of Mazizini, of the amaZizi, is a communal area under the Chieftaincy of *Nkosi Miya*. It is situated at approximately 28.44°S and 29.32°E at the foot of the Drakensberg Mountains and is adjacent to Royal Natal National Park which is part of the broader Maloti-Drakensberg Transfrontier Park (MDTP) (Mazibuko, 2011). It is situated approximately 46 kilometres from Bergville town. The area falls within the Okhahlamba local municipality, which is in the broader uThukela district municipality, located on the western boundary of KwaZulu-Natal (Figure 2.1) (Kznonline, 2016). The area ranges from approximately 1 402 m to 2 743 m above sea level and the altitudinal gradient across the rest of the district ranges between 600 m to 1 300 m (Mazibuko, 2011). The topography has gentle undulating hills with rocky rugged slopes and terraces, mountains incised by river gorges, narrow (and steep) as well as broad valleys, plateaus with steep slopes and escarpment slopes, and major cliff faces (Richardson *et al.*, n.d). For the purposes of this study, the Nhlangkomo Forest (13 ha), recognised as a culturally significant forest, was selected as a proxy for the sacred *Hlathi lama Khosi*, given that access to the latter is strictly restricted. Consequently, all ecological field surveys and complementary data collection methods were conducted in the Nhlangkomo Forest (Chapter 2). In turn, the Royal Natal Forest (23 ha) was identified as the counterfactual site, enabling assessment of the conservation effectiveness

of SFs (Chapter 2). The size of the sacred forest in Mazizini referred to as the *Hlathi lama Khosi*, is however not provided due to sensitivity of disclosing information about its physical traits that could make it easier to geographically locate.

2.2.1.2. Biophysical background

The area is characterised by warm to hot summers and mild to extremely cold winters with frost, mist, and snow (Richardson *et al.*, n.d; Mazibuko, 2011). It has a mean annual temperature of 13.7° C (Mazibuko, 2011). Rainfall occurs mainly in the hot, summer months (November - May), with occasional droughts. The mean annual rainfall is 1 198 mm (Richardson *et al.*, n.d). The soil is shallow, and drainage is poor, which constrains farming activities. Additionally, just less than 50% of the gently sloping land is considerably rocky (Mazibuko, 2011). The vegetation is primarily grasslands, viz. the Northern Drakensberg Highland Grassland and Northern KZN Moist Grassland, along with isolated Misbelt forests (Mazibuko, 2011; Richardson *et al.*, n.d).

2.2.1.3. The cultural-historical context

There are various living heritage sites in the Drakensberg, however little is known about them, and many sites may still need to be documented (Prins, 2018). There are certain areas in the Maloti-Drakensberg that are still frequented by local communities who regard them as sacred (Prins, 2018). The community is largely underdeveloped and is characterised by its vast wilderness which is valued by the amaZizi because it offers “opportunities to experience solitude and for spiritual renewal” (EKZNW 2006 cited in Prins, 2018: 26). Several forests are a part of the wilderness that are culturally significant, used as a means to spiritually connect to ancestors and should, therefore, be kept undisturbed (Prins, 2018).

The *amaKhosi* (Chiefs) of the amaZizi are believed to be buried in the mountains and in the forest. The burial site of *Nkosi* Magangane, a prominent and well-known former leader of the amaZizi, is located in Royal Natal National Park (RNNP) as is his son is *Nkosi* Sdinani (Mazibuko, 2011). However, after the establishment of the park in 1916, the amaZizi were excluded from the area and consequently, a new burial ground for the *amaKhosi* was established on the Ndlankomo mountain. This mountain is considered sacred for the amaZizi and is believed to have deep spiritual meaning; therefore, hikers are requested to keep away from the slopes of this mountain (Maloti-Drakensberg, 2019). The burial ground of the *amaKhosi* is believed to be in one of the indigenous forest patches in the Ndlankomo mountain known as the *Hlathi lama Khosi* (the forest of the Chiefs). The sacred, indigenous forest of the amaZizi people has been the secret burial ground of early amaZizi *amaKhosi*. Access to the SF is strictly limited to only certain members of the royal family. Due to the belief that the forest is haunted, special permission must be granted by the ruling amaZizi *Nkosi* before anyone enters it (Maloti-Drakensberg, 2019). Additionally, access to all the indigenous forests on the Ndlankomo mountain is restricted. Because of such restrictions and the *Hlathi lama Khosi* being off-limits, one of the indigenous forests, referred to in this study as the ‘Ndlankomo’ forest, was chosen (with permission from the traditional authority) as an alternative.

2.2.1.4. The social background

The amaZizi population in the Mazizini community is 99.8% Black African of which the majority speaks IsiZulu (Statssa, 2011). Other languages are IsiNdebele and Sesotho. The area has a population of approximately 1 765 (52% female and 45% male) and 271 households (Statssa, 2011). Approximately half (60%) of the households are female-headed, and the dependency ratio is 89%. Eleven percent of the population (aged 20+) has matric and 2% have higher education (Statssa, 2011). Average household incomes per annum are: 17% with no income, 6% in the lowest income bracket (R1- R4 800), 1% earning the highest income (R307 601- R614 400), and 25% of the population, which accounts for the largest percentage, earn between R9 601- R19 600 (Statssa, 2011). There is a high percentage of households that have formal dwellings, however only 2% of dwellings have piped water, 1% have a flush toilet connected to sewerage and 93% have electricity. The water sources include boreholes (79%) and rivers and streams (13%). The amaZizi people are pastoralists who depend on the sale of wool. Shallow soils and rocky slopes limit cropping activities in the area (Mazibuko, 2011; UNEP-WCMC, 2013). More recently, attempts to initiate ecotourism opportunities in the area have been undertaken to provide local employment (UNEP-WCMC, 2013).

2.2.2. Funjwa sacred forest in Mabasa

2.2.2.1. Location

Mabasa is a communal area under the chieftaincy of *Nkosi Nxumalo* where the Funjwa forest is located. Mabasa (27°22'2.02"S; 32°33'18.10"E) is located in uMhlabuyalingana, which is one of five local municipalities in Umkhanyakude district municipality (Figure 2.1). uMhlabuyalingana has four traditional authority communities namely KwaMashabane, KwaMbila, KwaTembe and KwaMabasa. uMhlabuyalingana has South Africa's largest freshwater lake, Lake Sibayi, with a surface area of approximately 64 km² (van Rensburg, 2019), and which is adjacent to the Funjwa forest. The Funjwa forest encompasses the sacred area of 113 ha, which is embedded within the forest and forms its eastern boundary, within the larger non-sacred area measuring 339 ha.

2.2.2.2. Biophysical background

The area is situated in the Northern Maputaland Coastal Plain (MCP) (Umhlabuyalingana, 2018) and is characterised by a tropical to subtropical climate transition zone (Nxumalo *et al.*, n.d). The area has a mean annual temperature of 25° C, a mean maximum temperature of 32° C and a mean minimum temperature of 20° C (Umhlabuyalingana, 2018). The mean annual rainfall for the area is approximately 1 119 mm (Climate-data.org, n.d). The area experiences a humid-subtropical, summer rainfall (Nxumalo *et al.*, n.d). Most of the rainfall occurs in the mid-summer (Kruger, 2014).

The topography, as suggested in the municipality name *uMhlabuyalingana* meaning 'the area that is flat', is generally flat to gently sloping with smooth undulations and hills. The area is situated in the Northern Maputaland Coastal Plain (MCP) (Umhlabuyalingana, 2018), with sandy soils and as a

consequence, the topsoil is susceptible to erosion (Umhlabuyalingana, 2018). The low-lying topography in the coastal plains lacks defined watercourses, i.e., poor channel formation; there are a few small rivers and only one classified as perennial (Ezemvelo KZN Wildlife, 2014; van Rensburg, 2018). However, there are large wetlands because the groundwater is generally close to the topographical surface, which strongly influences the terrestrial ecology. Groundwater is one of the key ecosystem drivers in the Maputaland coastal area (van Rensburg, 2018).

The vegetation is a mosaic of grassland, savanna, forest and thicket, and has a high number of endemic species (van Rensburg, 2018). Although the area is dominated by grassland, the general vegetation type of the area is described as Maputaland Coastal Thicket which is considered vulnerable within KZN (Umhlabuyalingana, 2018). Due to the vulnerable vegetation status at the municipal level, care needs to be taken in development planning to ensure little or no disturbance occurs to the untransformed thicket and grassland (Umhlabuyalingana, 2018). The region has several protected areas; consolidated into the iconic iSimangaliso Wetland Park which was proclaimed as a World Heritage Site in 1991 (van Rensburg, 2018). The Maputaland Coastal Plain region is commonly described as the mixing point between biota from the subtropical and temperate south and west, and the tropical north (van Rensburg, 2019). Maputaland, part of the Maputaland-Pondoland-Albany biodiversity hotspot, is a globally recognised centre of endemism (van Rensburg, 2019).

2.2.2.3. The cultural-historical context

The area has a rich cultural history which links to the history of the forested area in the region (van Rensburg, 2018). The area of Lake Sibayi, i.e., from the Phongolo River all the way to Mfolozi, including the ocean at St. Lucia, was ruled by King Zwide of the Ndwandwe nation from 1805 until 1820 (Buthelezi, 2012; SAHO, 2017). Despite being located far from the King's historical homeland in Nongoma, the Nxumalo have resided in Mabasa since the late 18th century (Buthelezi, 2012). The community of Mabasa "appears to be genealogically related to the main house of the Ndwandwe kingdom" (Buthelezi, 2012: 90) and is linked to the founder of Mabasa, who is believed to have arrived in 1770 and conquered the local chiefdom. Therefore, the area of Mabasa is believed to be a good place for Ndwandwe descendants to visit and remember their ancestors who were dispersed during the battle between King Shaka and King Zwide (Buthelezi, 2012).

2.2.2.4. The social background

The population is 94.4% Black African of which the majority speaks IsiZulu (Statssa, 2011). Other languages are IsiNdebele and English. The study area has a population of approximately 2 008 (55.4% female and 44.6% male) and 429 households (Statssa, 2011). There are 55.7% female-headed households, and the dependency ratio is 88.5%. In the population aged 20 and above, nearly a quarter (24%) have completed matric, and only a small fraction (4.6%) possess qualifications from higher education (Statssa, 2011). A diverse range of average annual household incomes includes 11% of households having no income at all, and 8.9% fall into the lowest income category, earning between R1

and R4 800. At the other end of the spectrum, a mere 0.2% enjoy the highest income level, exceeding R2 457 601. The most common income range, experienced by 29.7% of households, lies between R9 601-R19 600. With regard to housing conditions, nearly 60% of the population reside in formal structures, however, the availability of basic utilities is scarce; only 0.2% of these dwellings are serviced with piped water, and none benefit from flush toilets connected to a sewer system, and approximately 84% do not have access to electricity. The primary source of water for this community is boreholes, used by nearly half (49%) of the population, while other sources of water include rivers or streams (31%) and regional or local water schemes (17%). The municipality of uMhlayabulingana is 99% rural (Statssa, 2011; Umhlabuyalingana, 2018). Sixty percent of the municipality is a traditional authority area and 40% is commercial farms (cultivation of bananas and amadumbe- *Colocasia esculenta*) and conservation areas (Umhlabuyalingana, 2018; Mfeka, 2020). The economic base depends largely on tertiary services, the most prominent being community services accounting for about 70% of the municipal GDP (Umhlabuyalingana, 2018). Even though there are still concerns related to the water surrounding the impacts of the forestry industry, many people see this as their main or only source of income (van Rensburg, 2018; Mfeka, 2020).

2.3. Methodology

2.3.1. Mixed-method approach

This interdisciplinary study used a mixed-method approach that incorporates both qualitative and quantitative methods. Qualitative methods involve the collection of empirical data about how people make sense of their world and their lived experiences (Aspers and Corte, 2019; Hignett and Hilary, 2019), whilst quantitative methods deal with quantifying the world (Stockemer *et al.*, 2019). Mixed-method approaches are recognised as offering informative and more complete results (Imenda, 2014). A pluralistic framework is adopted and is particularly useful in studying, analysing and understanding social-ecological systems (Miller *et al.*, 2008). Considering the elusive concept of biocultural diversity, integrating the plurality of results aids in understanding the complexity of such relations (Miller *et al.*, 2008; Brosius *et al.*, 2010). Data integration which is a significant aspect of the mixed-method approach, serves the purpose of triangulation (Fielding, 2012).

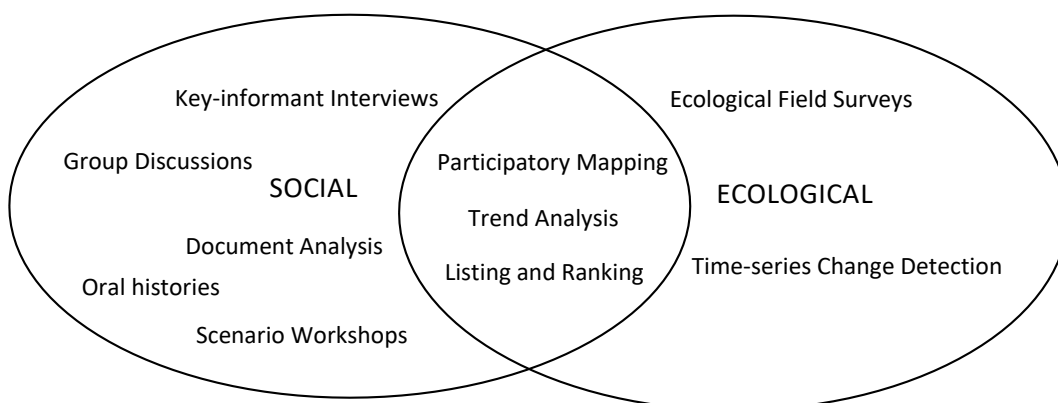


Figure 2.2. Methods employed spanning the social and ecological.

Triangulation in research is the use of multiple approaches to answer a question to increase confidence in the findings and to provide a comprehensive picture (Heale and Forbes, 2013; Carter, 2014). When applied across methods it adds “richness and depth to a research inquiry” (Heale and Forbes, 2013: 98). Although triangulation has faced criticism as it assumes that the data from two distinct research methods are comparable (Heale and Forbes, 2013), the application of triangulation for this study helps to answer a complex and interdisciplinary topic through the use of a variety of variables in explaining differing aspects of a phenomenon under investigation. It prevents “partial insight into the phenomenon of interest” (Carter, 2014: 546) and confirms suggested findings as it is “used to determine the completeness of data” (Heale and Forbes, 2013: 98). In this study, triangulation was applied to two components of the research, namely (1) methods used, and (2) data sources to answer the objectives of the study. An example of the use of different sources includes the simultaneous use of interviews and archival records to answer historical questions of the research.

In this study, triangulation was applied in this study to strengthen the credibility and rigor of the findings, not through the mere combination of data, but strategically where limitations in one method required support, clarification or validation from another (Table 2.2). This approach aligns with the interdisciplinary nature of the research, where cultural, historical and ecological dimensions needed to be integrated to form a holistic understanding of SFs. Each method provided unique insights while also compensating for the limitations of others. Thus, triangulation was not the simple combination of data but a deliberate process of relating methods and data sources to counteract biases, fill gaps and support results, thereby enhancing the credibility and rigor of the study.

Table 2.2 Some examples of the application of triangulation of methods and how triangulation was used to address the limitations that were counteracted.

Method / Data Source	Contribution to Objectives	Key Limitations	How Triangulation Addressed Limitations
Key-Informant Interviews	Provided specialised knowledge, particularly from authority figures, e.g., royal family, traditional council, to contextualise cultural governance and decision-making	Risk of bias, as informants sought to protect reputation or authority; selective disclosure	Triangulated with oral histories and FGDs, which revealed community perspectives, ensuring authority narratives were cross-checked against broader lived experiences
Focus Group Discussions	Revealed collective narratives, history, and contemporary cultural significance of SFs	Risk of bias (e.g., participants overstating “sacredness” to appear respectful); generational gaps with youth lacking historical knowledge	Supported by ranking exercises (to capture values more objectively); supplemented with oral histories for depth or deeper elder knowledge; observer effects mitigated by interviewing authority figures separately

Listing and Ranking / Trend Analysis	The listing and ranking captured relative values of forest uses and priorities associated with the SFs, whilst the trend analysis captured ecological change perceptions	May simplify or underplay nuanced cultural meanings because of the structured responses of ranking benefits from nature	Both methods were contextualised and cross-checked with FGDs and oral histories to ensure cultural depth was not lost; triangulated with ecological surveys to validate observed trends
Oral Histories	Provided elder-based, in-depth accounts of cultural and historical significance	Excluded younger voices; subject to memory gaps, undermined by customary secrecy or selective storytelling	Cross-checked with FGDs for contemporary perspectives and documents (archival or policy) for factual accuracy; whilst contextualised with key-informant interviews to clarify contradictions
Document Analysis	Offered historical, policy, and archival evidence; contextualised oral narratives	Incomplete or distorted due to colonial/apartheid influences; gaps in local perspectives or missing records	Used to support or challenge oral histories; filled factual gaps where memory or secrecy limited oral accounts, and clarified contested narratives
Participatory Mapping	Provided spatial knowledge of forest use, harvesting patterns, and ecological conditions	Relied on participants' recall and credibility	Enhanced FGDs and ecological surveys by producing visual validation of local knowledge; cross-checked with remote sensing
Ecological Field Surveys and Remote Sensing	Generated scientific data on forest condition and land-use change	May not fully capture cultural or local uses of the forest; potential misinterpretation of patterns without local context	Triangulated with participatory mapping and trend analysis, which provided local explanations for observed ecological patterns

The approach also helps to overcome the inherent biases of participants and the “fundamental biases arising from the use of a single method or a single observer” (Noble and Roberta Heale, 2019: 68), i.e., through the convergence of information from different sources as a form of validating the data (Carter, 2014). As illustrated in Table 2.1, a more integrated approach was adopted at each stage of answering the objectives for the study to provide a greater understanding and confidence in the findings (Heale and Forbes, 2013; Ndanu and Syombua, 2015; Noble and Roberta Heale, 2019).

Table 2.1. A summary of the data collection methods to be used to achieve the objectives of this study.

Objective	Methods
Explore the historical context of two communities and their relationships with the sacred forests to better understand the biocultural associations and disassociations or fragmentations	<ul style="list-style-type: none"> - Oral histories - Focus group discussions - Key informant interviews

	- Document analysis
Determine in what ways local perceptions, uses and values affect the integrity and condition of the sacred forests.	- Oral histories - Focus group discussions - Participatory mapping - Trend analysis - Listing and ranking - Key informant interviews
Determine the current ecological condition and integrity of the sacred and assess whether it has changed over the recent past. If there have been changes, describe what these changes are and what caused them?	- Ecological field surveys - Oral histories - Focus group discussions - Remote sensing
Appraise how SFs can be best protected and managed.	- Oral histories - Focus group discussions - Key informant interviews - Scenario workshops

Another key methodological consideration in this study is data saturation particularly in relation to the key-informant interviews and oral histories. Data saturation refers to the point at which no new insights or information emerge from additional data collection (Guest *et al.*, 2006; Saunders *et al.*, 2018). In this study, saturation was reached toward the end of the interview process, of which the sample size was informed by previous studies and what was logistically achievable during the fieldwork period. Data saturation was, therefore, evident as subsequent interviews yielded little to no new information, indicating that sufficient data had been collected to answer the research questions.

2.3.2. Data collection methods

2.3.2.1. Forest change detection through remote sensing: a time-series analysis

High spatial resolution imagery (60 cm x 60 cm) was obtained via Google Earth (GE) for the years listed in Table 2.3, which allowed for detailed analysis of changes in forest cover structure, size and connectivity. Google Earth imagery was chosen for its high spatial resolution and the ability to cover extensive temporal periods. However, in this specific study, challenges in accessing imagery at a consistent five-year interval limited data available to the years listed in the table. Imagery for the early 2000s was either unavailable or obscured by cloud cover. The preprocessing and analysis of these images, as explained in Section 2.4.3.2, were conducted to create LULC maps for LULC change analysis (Section 2.3.3.2). These maps show changes in forest cover, structure, size and connectivity, as well as overall land-use or land-cover changes.

Table 2.3. Years used for LULC change analysis for the paired sites in Mabasa and Mazizini.

Mabasa		Mazizini	
Sacred site	Non-sacred site	Sacred site	Non-sacred site
2022	2022	2023	2023
2016	2016	2016	2015
2010	2010	2013	2010

2.3.2.2. Ecological surveys using belt transects

The ecological field surveys were undertaken in both communities during overlapping periods. In Mabasa, the surveys were carried out between October 2020 and April 2021 with the help of a two botanists, a “tracking guide”, the South African Environmental Observation Network’s node manager, a community assistant and myself. Whilst in Mazizini, the surveys were carried out from November 2020 to May 2021 supported by a “tracking guide”, botanist, community assistant, field assistant and myself. The ecological survey aimed to determine the ecological condition and integrity of the sacred forests with reference to adjacent counterfactual sites (non-sacred forests). The belt transects were 50 m x 2 m (100 m²) in which a 50 m line was laid out in the middle of the transect. Both the direction and locations of the transects were determined randomly (Seidel and Boyce, 2016). There were 24 and 18 transects in the non-sacred area and sacred area of the Funjwa forest, respectively in Mabasa, and 23 and 13 transects in the non-sacred reserve forest and the culturally significant Nhlinkomo forest, respectively in Mazizini. The transects were randomly selected after overlaying a grid in ArcGIS to generate grid points, which were transferred into Excel for random selection using the “rand function” and the “data sort by” command as “random”. At every 12.5 m along the transect, a 4 m x 1 m quadrat was located, in which the diameter of the largest piece of deadwood was measured. A second 2 m x 1 m was located inside the 4 m² quadrat (Figure 2.3) to determine the percentage cover for forest and human litter.

The following were assessed:

1. Adult woody plant composition and abundance: every wood stem with a basal diameter ≥ 5 cm was counted and identified, and basal diameter measure at 5 cm above ground.
2. Juvenile woody plant composition and abundance: in each 4 m² quadrat per transect, all stems <5 cm diameter were counted and identified.
3. Signs of harvesting: tree/stem cuttings and bark damage were evaluated on every adult stem using Cunningham’s seven-point scale for stem damage (Botha *et al.*, 2002)
4. Dung: number of dung piles or pats and type (cow, goat, eland, etc.) were counted per transect.

5. Deadwood: measurement of the diameter (mm) of the largest piece of deadwood using vernier callipers.

6. Ground cover: the Modified Walker scale (Shackleton *et al.*, 2003; Steele *et al.*, 2015) was used to visually estimate bare ground, twig/leaf litter, herbaceous layer (grass and herbs), rock cover, and human litter (paper, plastic, etc.).

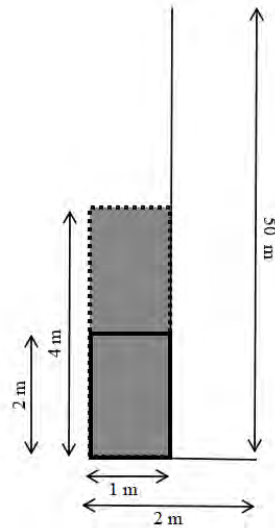


Figure 2.3. Belt transect including 4 m² and 2 m² quadrat location and measurements

Two counterfactual sites, i.e., the Royal Natal National Park in Mazizini and the area outside the sacred Funjwa forest boundary in Mabasa, relatively similar in size, slope, aspect and altitude to the sacred forests were also sampled. The counterfactual sites are used to assess the conservation effectiveness of sacred forests for forest condition with reference to forest vegetation productivity, canopy cover retention, forest size, forest connectivity, species richness and composition as proxies for the biodiversity measure. Only ecological field surveys and remote sensing analysis (Section 2.4.2.2) were conducted for the counterfactual sites to determine if there were any significant differences in forest integrity and condition as compared to the sacred forests. It is important to note that since access to the sacred *Hlathi lama Khosi* (forest) is restricted, the ecological field surveys were conducted in the culturally significant Nhlankomo forest instead (Chapter 3). It is also worth-noting that the Nhlankomo forest was used for all the other data collection methods due to the *Hlathi lama Khosi* being off-limits.

2.3.2.3. Focus group workshops

The focus group (FG) workshops were carried out after ethics approval was granted (December 2020), with data collection commencing in June 2021. Focus groups were undertaken at each site, which included 20 participants at each site split into groups. The participants were aged between 20 and 75 years to ensure a range of perspectives. Twenty community members participated in the workshop in Mabasa, twelve females and eight males, and another twenty community members participated in the workshop in Manzini, ten females and ten males. The participants were divided into groups of five.

In bringing together people from different backgrounds, participant selection aimed to ensure diversity while maintaining certain shared commonalities. This approach helped avoid a group that was too heterogeneous. Participants were required to be members of the community that had knowledge of, used, visited or were associated with the SF (Shively, 2011). During this process, care was taken to include individuals meeting these criteria, ensuring that all participants had some connection to the SF, whether through cultural practices or other associations. This broad criterion can be considered inclusive to capture a wide range of community perspectives and experiences. This is particularly important given that the SFs serve a multifaceted purpose, i.e., spiritual, ecological, and cultural roles within the community. This broad approach enabled the research to reflect the diverse ways in which different individuals engage with and value the forest.

The initial sample of participants for the focus groups was selected using convenience sampling (Handcock and Gile, 2011; Naderifar *et al.*, 2017). However, according to Naderifar *et al.* (2017), convenience sampling is one of the weakest forms of sampling, therefore a gradual process of snowball sampling was later used. Hence, the initial sample was then used to help find additional participants who conducted similar activities. Snowball sampling is a repetitive and accumulative process, i.e., the initial group of informants referred me to other informants and so on (Noy, 2008; Handcock and Gile, 2011; Naderifar *et al.*, 2017). Noy (2008: 327) also pointed out that snowball sampling generates “a unique type of social knowledge; knowledge which is emergent, political and interactional”. Participants within respective communities and within social networks potentially influence the sampling technique based on who is being referred and who is not, due to socio-cultural hegemony. In this way, respondents drive the sampling process (Noy, 2008).

Various Participatory Rural Appraisal (PRA) exercises were conducted with the focus groups, including, participatory mapping (Section 2.3.2.3.1), listing and ranking (Section 2.3.2.3.2), trend analysis (Section 2.3.2.3.3) and in-depth group discussions (Section 2.3.2.3.4) (Schreckenberg *et al.*, 2016). The focus group workshops took place for two days with each group (Figure 2.4). Each day lasted 8.5 hours, including a tea and a lunch break. The first day included completing a participatory mapping exercise followed by the listing and ranking exercise. On the second day, trend analysis and an in-depth group discussion were undertaken, i.e., apart from the group discussion associated with the listing and ranking, trend analysis and participatory mapping, were conducted. The PRA techniques were used because they were deemed appropriate tools to elicit responses from participants to obtain their perceptions, values, opinions and experiences (Schreckenberg *et al.*, 2016).

The workshops were carried out in English and were translated into isiZulu for the participants. Due to the study involving change detection analysis, e.g., the trend analysis, and socio-cultural relationships attributed to the sacredness of nature, elderly members of the community were included in the focus group workshops. Elderly members within the community are able to provide a historical context of the landscape, traditional practices, beliefs, and the influences of modernisation (Mialhe *et al.*, 2015). In terms of ethical considerations, the participants were reassured that there were no wrong or right answers

or unwelcome questions. This reassurance helped to avoid biases or omissions that could potentially result in some participants withholding their views, perceptions or understandings because of fear or thinking their input is inferior to others (Koskinen *et al.*, 2019). Additionally, the possible domination by some participants, i.e., participants overpowering others in a belittling manner or in any form of disrespect, was addressed through the establishment of clear ground rules set during the plenary. For example, participants were remained to be respectful of each other and to give everyone an equal opportunity to contribute. Participants were encouraged to listen to each other's perspectives and give constructive criticism by either agreeing or disagreeing and adding to each perspective. In this way, participants were encouraged to learn from each other (Schreckenberg *et al.*, 2016). Measures were taken to ensure that all participants had the opportunity to speak by asking each participant to share their thoughts on the questions asked. To avoid unnecessary pressure on participants, especially hesitant or shy participants, they were initially engaged in off-topic conversations and then gradually eased into the discussion to answer questions related to the topic.

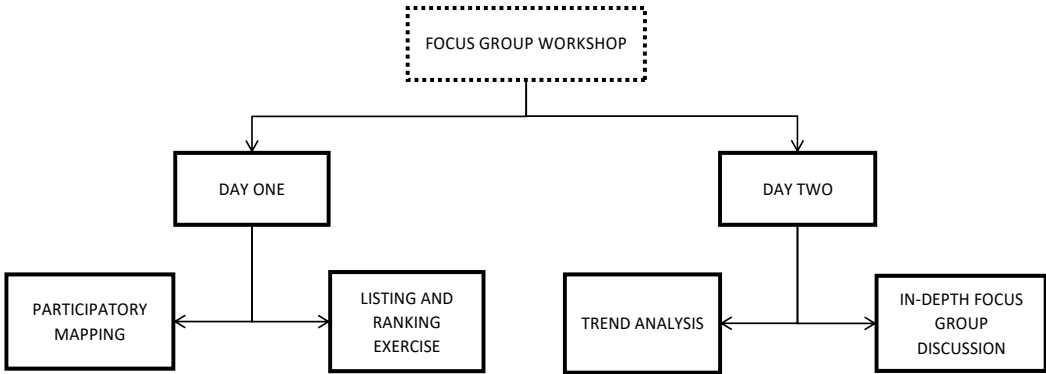


Figure 2.4. Breakdown of data collection for the focus groups held in both study sites.

A range of interactive techniques was incorporated into each of the methods used. These include both visual and verbal participatory engagements with the participants to obtain knowledge about resource use, values and the contributions of ecosystem services (ES), changes in forest condition and integrity as well as (forest) management implications (Schreckenberg *et al.*, 2016). The PRA exercises allow for interactive engagement, and knowledge sharing, which encourages open dialogue and creates a space for participants to feel comfortable to have discussions (Cavestro, 2003; Hennink, 2013). The exercises also allow for independent views and insight as well as information at the community level to be acquired because it allows for better engagement with the participants. This is possible because the exercises enabled a more inclusive environment, especially for those who are illiterate and less articulate (Schreckenberg *et al.*, 2016). All the participatory activities were implemented with the help of a community representative.

In terms of challenges experienced during the FG discussions included a generational knowledge gap and power dynamics. Younger participants often lacked a deep cultural understanding of the forest which limited their engagement in discussion about its historical cultural context. More knowledgeable

participants tended to dominate the conversation. To address this, younger participants were actively engaged by inviting them to recall stories or information learned from elders, which also highlighted the intergenerational transmission of cultural knowledge, a theme further explored in the scenario workshops. Additionally, in the first FG workshop, the presence of a traditional council member as an observer appeared to make some participants less willing to speak openly, particularly on sensitive matters such as the game reserve which encompassed the SFs. This dynamic may have skewed the discussion and limited the richness of the data. To mitigate this, authority figures were interviewed separately, and two different workshops were held to ensure more open and inclusive participation.

2.3.2.3.1. Participatory mapping: identifying sites of ecological and cultural significance

Participatory maps were used to gather valuable visual and spatial representations of information concerning natural physical features, natural resource use, socio-cultural features, for example, sites of historical and cultural significance, as well as other perceptions shared about the local landscape (Corbett, 2009). Participants were encouraged to locate areas or significant features within three domains; (1) ecological, e.g., species-rich areas, areas with threatened or vulnerable species or habitats, endemic species or hidden habitats, degraded areas or areas of significant forest structural changes, (2) “use zone”, e.g., natural resource use and areas with a high concentration of ES (Newing *et al.*, 2010: 187), and (3) socio-cultural features such as burial sites, demarcation of ancestral domains and territorial boundaries (Corbett, 2009). Given that the Mabasa sacred forest is located within the Funjwa forest, whilst the area outside the sacred boundary is considered the non-sacred area of the forest, participants in Mabasa felt it important to map sites in the non-sacred area as well. This was encouraged on the premise that access to such information could assist in understanding use or changes in the non-sacred area of the forest that could in turn affect the integrity of the sacred area of the forest. Care was taken during the demarcation of the sacred Funjwa forest boundary in Mabasa as well as in mapping other significant areas for both communities to avoid raising issues and creating conflict by provoking land or boundary disputes amongst community members or between communities (Mialhe *et al.*, 2015). Sensitivity was also required in relation to community leaders requesting not to map the location of certain resources that community leaders did not want to make public. This was done to ensure information remained inaccessible to outsiders (Newing *et al.*, 2010).

Participants were also required to identify on the map areas that were meaningful to them. The request included identifying areas that were of significance both in the past and currently. Attention was given to both in an attempt to understand if any changes had taken place in relation to understanding people's values, beliefs and perceptions. Middle-aged participants were more actively involved in the mapping process, likely due to their greater familiarity with the forest. In contrast, younger participants admitted to frequenting the forest less and thus contributed less to mapping activities. To ensure all participants had an equal opportunity to contribute, I, as the facilitator actively engaged with the younger participants. The discussions were guided to help younger participants recall and reflect on their experiences in the forest. Additionally, asking them about incidents shared by their friends encouraged

them to share information. This approach helped to create a supportive environment to encourage participants of all ages to share meaningful insights. This approach was aimed to ensure that all voices were equally represented in the mapping process.

Additionally, participants were asked to locate areas that were previously in use viz. where they would previously harvest from or visit for traditional cultural or spiritual purposes in the forest. As noted by Brosius *et al.* (2010), in capturing the biocultural perspective to better understand spatial correlations through participatory mapping, the cartographic and correlative approach should not be based on the assumption that these visualisations speak for themselves. Rather, the process allows for the gathering of stories from participants about places identified as significant to them. The scale used for the participatory maps is of importance as it influences the level of detail that the participants can provide. Thus, digital mapping was done using high spatial resolution imagery in Google Earth (with 0% cloud cover) for the year 2021 in both study sites. The participatory mapping was done using a projector. Place names and landmarks were labelled on the map to help participants orientate for easier application (Shively, 2011). A laminated orthophoto map was also used during times of poor network coverage. Participants were given different colour pins, i.e., different colours were associated with different ES categories. While the areas identified on the map provided a visual image and a spatial dimension, the debates and conversations held during the activity were also recorded. Attention was predominantly given to the main forms of land use change, previous land use, current land practices and other socio-cultural relationships (Schreckenberg *et al.*, 2016). Participatory mapping helps to understand the cultural dimensions by highlighting the forests' spiritual, ancestral, and cultural significance as perceived by the community. It also helps to determine the spatial distribution, and cultural importance or value attributed to the sacred forests which can inform more effective resource management plans. As such, the mapping was used to better understand the remote sensing analysis.

2.3.2.3.2. Listing and ranking: examining values attached to the sacred forests

A listing and ranking exercise was conducted to identify key benefits derived from nature. Attention was given to recording those that participants deemed essential to local activities, cultural or domestic practices or beliefs (Schreckenberg *et al.*, 2016). Each group of participants were required to list benefits derived from nature. Thereafter, each participant was required to choose from the list, the five most important benefits from the forest which they ranked according to their relative importance viz. their use, practice or consumption and/or spiritual significance to themselves or in relation to what they felt was important to the community. The participants ranked lists provided their order of preference and provided insight into understanding local value systems (Schreckenberg *et al.*, 2016; Mjoli, 2017) from most important to least important. The ranking provided insight into how participants value aspects of the forest, e.g., cultural importance, conservation needs, or economic value, including what aspects of the SFs are most valued and why. The ranking was, therefore, used to answer objective 2 (Table 2.1). The reasoning behind the ranking order was then discussed (Schreckenberg *et al.*, 2016). Participants were also asked about what the forest meant to them, what about the forest is important to them and

why. Thus, participatory listing and ranking provided me with an understanding of local perceptions, opinions and values attached to ES provided by the sacred forests (López-Marrero and Hermansen-Báez, 2011).

2.3.2.3.3. Trend analysis

The trend analysis was used to better understand the history of the landscape and the community by identifying perceived changes for categories that were identified during the preliminary findings. The categories include ecosystem services (ES) or forest use benefits (such as fuelwood, medicinal plants, building wood and tourism), number of forest users, reliance on the forest, forest size, forest canopy openings, plant and animal composition, types of rules and reverence associated with the forests. The categories were included in a trend analysis data sheet (Appendix A). Whilst some of the categories were self-explanatory such as forest size, other categories were explained to the participants. Canopy openings were explained as gaps in the forest that allow one to see the sky when looking up or that allow light to come through. Plant and animal composition were explained as different species that are present including how much of these species are found in the forest. Reliance on the forest and reverence were explained as the number of people dependent on the forest for their needs, livelihoods, etc., and as respect locals have for the SF, respectively.

Participants were asked to indicate on the data sheet, whether each of the categories had decreased, increased or stayed the same over the last 20 years. The 20-year period was divided into two periods: 2000-2010 and 2011-2020, and are referred to as the first and second periods, respectively. A 20-year time frame was used as it was deemed an adequate period to gain detailed information. A longer period would have resulted in less accurate and precise recall of forest use, users and conditions. Concerning the trend for ES, the FG participants were also required to evaluate as a group, the ES that were identified during the listing and ranking exercise. The groups were asked if the availability of these additional ES had increased, decreased, stayed the same or were absent for the two periods.

Once the trend or changes were established for each of the categories, the FG participants engaged in a discussion on understanding the meanings and associations given to different components of the local landscape, land-use changes and land-use practices previously identified (Mialhe *et al.*, 2015). Additionally, conflict issues, significant events, community history of cooperation and activities which helped the community to solve past problems were discussed (Cavestro, 2003). The discussion also included locals' accounts of the past, i.e., what they saw or experienced, reasons as to why changes occurred, how changes affected their lives, how the participants responded to the changes at the time, and whether they thought changes could have been reversed or controlled were discussed. Lastly, the participants were asked to project current trends into the future (Newing *et al.*, 2010) and potential future responses from the community (Schreckenber *et al.*, 2016).

2.3.2.3.4. In-depth focus group discussion

A focus group (FG) discussion was generated with a range of topics, views, understandings and perceptions regarding the research objectives (Mapedza *et al.*, 2003). The FG discussion lasted for approximately an hour and was aimed at exploring and understanding the different perceptions of the landscape. The participants, aged between 20 and 75 years who were members of the community that knew about, used, visited or was associated with the SF (Section 2.3.2.3). Thus, FGs involved an in-depth, interactive discussion in which independent views, perceptions and insights were evoked, as well as information at the community level was acquired (Mapedza *et al.*, 2003; Mjoli, 2017). The following topics were focused on:

- Cultural and religious beliefs, role of the ancestors and religious practices
- The significance of the SF: its history, sacredness and importance to the community
- Community-forest relationships at the personal level and community level
- Ecological conservation of the SF: traditional authority governance and community agency, and TEK
- Forest resource, use and regulations
- The government's role in resource management of the SF and their understanding of local traditions
- Community concerns about the preservation of the SF and future considerations

As such, an understanding of the social-ecological relationships and impacts on the ecological condition as well as the cultural integrity of the forest was developed. The group discussion also helped to further understand and clarify some of the findings from the other PRA exercises, i.e., the listing and ranking, participatory mapping and trend analysis.

2.3.2.4. Key informant interviews

Semi-structured interviews were conducted with key informants such as traditional healers, e.g., *sangoma* (diviner) or *inyanga* (herbalist), traditional leaders, e.g., the *Nkosi* (Chief) or a representative, e.g., a *Nduna* (headmen of the Chief's council) and government authoritative figures e.g. municipal or ward councillor. Among the key informants, the *Nkosi*, certain members of the royal family and his council are regarded as the primary custodians of the SFs in both communities. Interviews were conducted with either the *Nkosi* or a royal family member at both sites. Traditional healers are also considered custodians, although their roles, perspectives and responsibilities differ. Given their shared custodianship, asking the similar questions of both groups helped to uncover overlapping and complementary understandings of the SF's biocultural significance.

The key informants' interviews were conducted concurrently with the FG workshops. Three interviews were done per site and lasted approximately 45 minutes to 1.5 hours. The interviews were primarily

done in isiZulu except for the interviews with the government authoritative figures, which were done in English. Interviews provided an in-depth understanding of the socio-cultural practices and beliefs, the importance of TEK and social-ecological trends and drivers of change. Different prompt sheets were drafted for the three key informants. The following topics were covered by the respective key informants:

- *Nkosi* (Chief) /*Nduna* (Headmen): cultural and spiritual significance of the SF, cultural practices norms, beliefs and values associated with the SF, natural resource use and dependency, conservation and management challenges of the biocultural significance of the SF, and the ecological condition of the SF.
- Traditional healers: cultural significance and practices associated with the SF, use and management of the SF, conservation and environmental impact of cultural practices and beliefs on the SF, community involvement in the conservation of the site and traditional ecological knowledge, and ecological condition or overall health and state of the SF.
- Government authoritative representatives: awareness of the cultural or spiritual significance of the forest, personal experiences with the SF, threats and challenges to the conservation of the SF, legal frameworks and/or policies for the preservation of SF, and the inclusion of SF within the conservation network and conservation strategies.

2.3.2.5. Oral history interviews

Oral histories as a method focuses on acquiring the personal narratives and memories that allow participants to share their stories, experiences and feelings in their own words (Shopes, 2011; Ritchie, 2014). In this study, oral history interviews were conducted with elderly members of the community to capture their lived experiences and intergenerational knowledge of the cultural landscape. These included some of the elderly participants from the FG workshops as well as new participants from the community.

The interviews were designed to be open-ended and conversational, enabling participants to shape the discussion and foreground the issues that mattered most to them. The objective was to identify and understand the multi-dimensional influences, i.e., how historical, political and socioeconomic factors have had an impact on the cultural landscape of the communities across successive generations. In this study, DPSIR as an analytical support tool was used to guide questioning and organise insights for structuring data afterward, rather than to constrain the narratives. Consequently, a flexible prompt sheet was developed to ensure that key themes relevant to the study were not overlooked using DPSIR (Drivers, Pressures, State, Impact, Responses) to determine the drivers or changes, causes, consequences, and outcomes of these consequences.

A flexible prompt sheet (Appendix B) was developed to ensure that important themes were not overlooked while still allowing the conversations to flow naturally. The prompt sheet helped to (1) ensure that important topics were covered as well as specific aspects of the topic, (2) serve as a reminder

to address key dates, events or experiences, and (3) maintain some consistency for later analysis. Examples of the way in which questions were asked, including socio-demographic characteristics of cohorts representing different chronological time periods, were: How are kids raised today as compared to how you were raised as a kid? How were cultural practices instilled in you as compared to children of today? What are some of the cultural uses today versus in the past? What were your responsibilities as a member of the community in maintaining the (social and cultural or spiritual) well-being of the community, and does this differ with the lives of their children and grandchildren? The participants were also asked to relate stories about monumental or noteworthy historical or political events as well as events that were of significance to themselves within the cultural landscape. They were also asked to compare the condition of the SF, the community, and the surrounding area when they were young as compared to the present, i.e., through the generations of their lifetime, which included their perceptions of the biocultural integrity of the community in terms of the longevity and cohesion of biocultural relations. As such, applying the DPSIR approach, the oral history interviews were used to further explore, fill in information gaps or clarify, and contextualise insights gathered from the FGDs and key informant interviews. In practice, this resulted in participants reflecting on drivers of change, cultural practices, and community responsibilities, while also recounting narratives that extended well beyond the DPSIR categories. This hybrid approach aligns with oral history's concern with memory, context, and meaning-making, while allowing the data to be examined in relation to ecological and social change.

Oral histories as primary data were retrieved from eight to 10 participants older than 65 years of age per site, however, exceptions were made to include certain key informants that were younger than the specified age group, i.e., the *Nkosi* or a representative, an *Nduna* or royal family member. The temporal scale primarily covered the past 60–70 years as per the living memories of the elderly participants but also included stories passed down from earlier generations. The oral histories were conducted between August and October 2022 across both the communities, with each interview lasting between one and two hours. Additionally, follow-up visits (30 minutes to an hour) were carried out when clarification or expansion on information that was shared were needed. The interviews were carried out in English with the help of a Zulu translator. Participants were identified with the help of the community liaison from each study area. A community liaison, who, as a respected member of the community familiar with the traditions and culture of the community, helped to select participants for the study. Elderly participants were selected based on their role within the community, their engagement in traditional practices and their knowledge of the community's history and the SF. Demographic details of the participants were also considered, including their clan names (or surnames), place of birth, year of birth. Other socio-cultural attributes were also considered such as their role in the community, social standing (e.g., wealth status, royal lineage member) and religious affiliation. These details were considered important for establishing context for the individual narratives within the broader sociocultural and political contexts.

2.3.2.6. Document analysis

Document analysis is a research method that involves systematically reviewing and interpreting written texts (e.g., books, newspapers, academic papers, and reports) and visual materials (e.g., photos, videos, and films) to gain insights into a particular topic or research question (Morgan, 2022). This method entailed examining content and context to uncover meaning, identify patterns and extract relevant information. The document analysis and oral history interviews were carried out concurrently, this was influenced by the availability of contact persons in retrieving documentation and insights obtained from oral histories to identify relevant documents. Consequently, the document analysis was also conducted alongside the scenario workshops during July and August 2023.

Document analysis as secondary data was used to describe generational shifts in the historical biocultural context of the community and traditional authority spanning the last 100 years (with particular reference to the early 1900s and the Apartheid period). As such, the referenced documents dated back to approx. 100 years and included dates of significance. However, this time frame also included the period in which both of these sites are situated. For instance, the period of interest for the Mazizini community begins with the Mfecane period between *Nkosi* Matiwane of amaNgwane and Shaka Zulu of the Zulu Kingdom, whilst the time frame for the Mabasa community coincides with the Ndwandwe-Zulu war, both periods situated in the 1800s. An attempt was also made to explore the generational differences in relation to changes in knowledge and participation in cultural practices. Changes in governance and other cultural shifts were also assessed through content analysis of books, documents or songs over decades to gain an understanding of historical trends. Immigration and displacements of the local people, at a macro-scale, were also considered for insights into the impacts on the local custodianship and the cultural heritage of the biocultural landscape. Information on the establishments of the first school, church, hospital, shop, road, clinic, etc., within the community (micro-scale), was also gathered to determine if and how these influenced local livelihoods, beliefs and other biocultural relations. The following sources were used to retrieve information for the themes listed above:

Government and institutional sources

- Government departments, e.g., COGTA
- Traditional council office
- Amafa heritage institute
- Municipal census data to describe socio-cultural or demographic shifts over time, e.g., loss of TEK in relation to urbanisation, income, land use change, market integration, acculturation, religious conversion, conservation policies, etc.

Environmental and conservation organisations

- NGOs or environmental conservation agencies/organisations

Archives and historical documents

- Historical archives, e.g., the old Killie Campbell archive and the National Archives and Records Service of South Africa (NARSSA) i.e, the Pietermaritzburg Archives Repository and Archives in Ulundi, South Africa
- Documents (references to find other reliable or useful sources)
- Museums

Research databases and libraries

- Sabinet (which contains media articles and gazettes)
- Cory and Lexis Nexis libraries at Rhodes University
- Google Scholar and JSTOR (great for historical information)

The following themes were considered:

Historical socio-cultural aspects

- Local community history and autonomy
- Immigration history
- Anthropological ethnographies carried out in the region
- Heritage studies

Changes in land use and development

- Developments or establishments such as infrastructure and land claims
- The introduction of services
- Levels of employment over the years (STATS SA)

Ecological aspects

- Changes in forest structure, productivity/functioning and use
- Biological diversity and species richness

Cultural and ethnobotanical knowledge

- Cultural uses of forests and/or species

- Ethnobotanical/zoological and entomology knowledge

It should be noted that given the lack of accessibility to documents and the lack of documented information, knowledgeable individuals such as conservation officers from Ezemvelo KZN Wildlife, members from environmental or social development organisations such as Wildtrust and Waterwise (working in the community), community representatives, etc., were contacted. Meetings were scheduled with municipal officials to help locate documents or to provide me with them to develop a sense of projects undertaken in the community over the years. See Annexure (A) of the list of sources and references, including organisations or people contacted.

2.3.2.7. Scenario workshops

Ramirez & Selin (2014 cited in Tyszczyk, 2021: 3) have defined scenarios “as ‘a small set of stories of future contextual conditions linked with the present, made for someone and fulfilling an explicit purpose’”. They are generally understood as stories of change to anticipate the future considered to be in crisis or malfunctioning (Tyszczyk, 2021). Scenarios help to make sense of the unknown. The common method of scenarios is to gain a clearer understanding of the future by rehearsing the future or exploring potential future outcomes. The scenario is particularly used to hypothesise about the future and prepare for the future (Tyszczyk, 2021). It is important to note that scenarios are not about predicting the future, but rather about using plausible futures to inform decision-making in the present. Consequently, the scenario workshops in this study made use of negative “headlines” based on current trends as scenarios, which were presented to the participants to explore potential future outcomes for SFs and the biocultural relations associated with them. The negative’ headlines were substituted for Seeds of Good Anthropocenes (SOGA) which is generally used for scenarios (Bennett *et al.*, 2016; Hamann *et al.*, 2020) and referred to as SOGA scenarios (Pereira *et al.*, 2019). The scenario workshop made use of headlines (Table 2.4), which were based on the findings acquired during the course of the research in the community, i.e., from the key informant interviews, FGDs and oral history interviews.

Scenario workshops were also conducted to understand complex causality and change trajectories of the biocultural systems as participants made sense of the complexity of the issues faced in the community. As such, the DPSIR approach (Section 2.4.2.5) was also used for the scenario workshops to consider more deeply some of the results from the FG workshop, key informant and oral history interviews and document analysis. These findings were compiled and shared with the participants, who were clearly informed that the information presented to them was based on their own contributions, and served as preliminary findings to consider when working with the negative headlines. The scenarios workshop placed a lot of focus on the “direct action (Response) from the human society” (Caponigro and Iannucci, 2010: 642). This focus required the participants to think together about the future of their SF and develop solutions, including those to inform policy and to improve “prospects for resilience” (Miller, 2018: 2011).

There were two workshops conducted in each study area held over two consecutive days at each site during August 2023. The first scenario workshop was held from 9:00 am to 3:30 pm, and the second workshop was conducted from 11:00 am to 2:00 pm. Participants received a verbal invitation to attend the workshop. They were provided with a brief explanation of the workshop's purpose, objective and scope. The first workshop comprised approximately 18 participants, consisting of both young and old people aged between 25 to over 65 years. The elderly participants were those who participated in the oral history interviews, whilst the remaining participants were those who participated in the focus group workshops. Participants were considered as representing ordinary community members. They were divided into three subgroups. Each group was provided with a headline to work with. Instructions were given to change the headline provided to them into a headline that represented a future they desired. Three headlines were developed for each site. The second workshop in each study site was meant to comprise of at least 10 representatives from the TA and royal family. The groups were separated to account for differences in power dynamics.

In preparation for the second workshop in each study sites the *amaKhosi* mentioned that they would attend and that they would bring representatives from their respective royal families, but they did not specify whom. However, they canceled just before the workshop was set to begin. Their absence presented challenges in securing the participation of traditional leaders, which significantly impacted attendance for the second-day workshop. In Mazizini, only three participants were present, all of whom were representatives from the TA, with neither the *Nkosi* nor any royal family members attended. Due to the low turnout, the participants were placed in a single group and were given two of the three headlines from the previous day's workshop to work with. Like Mazizini, the Mabasa *Nkosi* did not attend. Nevertheless, seven participants attended from both the TA and the royal family. They were divided into two groups, each working on one of two headlines.

Table 2.4. Headlines provided to participants for scenario workshops in each study site

Scenario workshop headlines	
Mabasa	Mazizini
<i>The sacred Emzinyeni forest and the rise in churches threatening the sacredness of the Funjwa forest</i>	<i>The 'secret' of amaZizi amakhosi burial is a threat to their cultural heritage</i>
<i>Forest loss on account of traditional authority's lack of management</i>	<i>The constitution of the democratic government contributes to cultural breakdowns and neglecting of traditions</i>
<i>Youth apathy towards cultural traditions and the sacred Funjwa forest undermines the ancestral importance of the Funjwa forest and the erosion of cultural practices</i>	<i>Youth apathy towards cultural traditions and the sacred forest undermines the cultural importance of the forest and erosion of cultural practices</i>

Before the session for the scenarios began, preliminary findings were shared. The purpose and procedure of the workshop were also explained to participants. Each group was assigned a "reporter". The reporter assisted in capturing what was being said in the group to help the facilitator who was unable to capture the entire discussion held in each group. A recording device was also given to each group to capture the discussions taking place. This information was later transcribed and translated by the facilitator. Given that most of the participants, particularly the elders, were isiZulu speaking an IsiZulu speaking facilitator was used at both study sites. To address challenges of illiteracy, a visual harvester (Tori *et al.*, 2023) was present for both workshops to help keep participants informed during the workshop, especially for the participants who could not read or write in IsiZulu or English. This helped to ensure active participant engagement. The visual harvester was English speaking and therefore had a translator to assist in developing the graphic. The visual harvester also used the reporter's notes, etc., to capture the narrative for each headline by the group to create the group's graphic.

The scenario workshop was conducted using the Three Horizons approach (Hamann *et al.*, 2020) along with two parts of the Casual Layered Analysis (CLA), specifically layers two and three, to understand the deeper causes and underlying factors influencing the situation (Inayatullah, 2005). The Three Horizons as a graphical tool was used to encourage participants to identify apparent issues, concerns or challenges in the present (1st Horizon) that need to change or disappear. This was done through the exploration of changes that have occurred over time and of which participants made sense of emerging changes. This was also done through the identification of measures taken to overcome these issues. Consequently, participants developed "imaginary steps" (ideas and approaches that facilitate transition) (2nd Horizon) to achieve their desired future (3rd Horizon). Additionally, Causal Layered Analysis (CLA) was used to delve deeper into the underlying causes that drive these issues and concerns. The groups were provided with their headline which they needed to change. Each group was required to change their headline to a desired future for the community, i.e., to a future that the participants would want for their community. Based on these set objectives used, the following was explained to the participants, "we are going to be thinking about the future, and how to get to where we want to go as a community".

The step-by-step process of how the scenario workshops were conducted:

1. Preliminary research findings: The facilitator informed the participants about the preliminary findings and the purpose of the workshop to help guide the discussions concerning the headlines that were provided.
2. Headlines: Three headlines (Table 2.4) were shared with the group during the plenary and each sub-group was assigned one headline. The headlines were explained to the participants, e.g., "based on what you shared with me, we imagined some "headlines" you might read in the newspapers that may reflect what you've told me". Participants were also reminded that the headlines provided to them were fake

and that they were meant to be negative, to award them the opportunity as a community to create a positive future and to help them come up with solutions to overcome current challenges.

3. Grouping: The group was divided into sub-groups for the breakaway session to encourage group discussion and analysis as the groups worked on their assigned headline.

4. Developing desired headline (Horizon 3): Each sub-group was required to consider and discuss their headline as if it were to progress into the future to develop a new headline as a desired future, i.e., a headline that was the opposite of their current headline. Questions pertaining to the objective of Horizon 3 were asked to help participants develop their new desired headline. As such the participants imagined some “headlines” that they might want to read in the newspapers that reflect a positive image of their community and heritage. Their final headline as well as their discussion were captured by the reporter within the group.

5. Identifying concerns and issues (Horizon 1): Participants identified apparent issues of the present by connecting their desired future to the current state or processes. In this way, the apparent issues compromising the possibility or ability to achieve their desired future were identified. The group's discussion was captured by the group reporter which was added to the Three Horizons graph and discussed during the plenary.

6. Considering Causal Layered Analysis (CLA) layers: Once all groups had tackled Horizon 1 the facilitator prompted deeper reflection and analysis using CLA layers 2&3 to determine the beliefs or assumptions and the ideological perspectives underlying the structures and systems within the community, and to identify and interpret myths and the symbolic meanings associated with worldviews. Participants were required to identify what is valued, how decisions are made, and the main practices and institutions which can change. This discussion was also captured by the group reporters (added to the Three Horizons graphs).

7. Imaginary steps (Horizon 2): Participants were required to populate Horizon 2, the transition phase or space of both conflicts and options, with imaginary steps. Horizon 2 was based on Horizon 1 as well as the deeper underlying issues from the CLA layers to achieve the desired future or new headline outlined in Horizon 3. Examples of questions of how the good headlines could happen were; "what would make the traditional authority care?" "What would make the youth care?" and “would this lead to the outcomes we want?” So, what changes need to happen to have the desired outcome? (i.e., based on horizon 1, "how do we get there to the desired future"?).

8. The visual harvester role was to capture the narratives: Once the groups were completed with all three horizons for their headline, the groups returned to plenary during which the reporters for each group shared their desired headline and discussed the points shared on the charts across the different horizons. Consequently, the other groups had an opportunity to consider and contribute to each group's findings. This process was repeated for the second and third groups. During this time the visual harvester captured

the narrative of all three headlines separately. It should be noted that the visual harvester also captured information with the translator as the groups worked through each horizon.

9. Plenary: The reporters captured their groups' discussion about their headlines on the Three Horizons graphs for engagement from the other groups.

10. The discussion, the graphic and necessary changes: The facilitator also added to the graph captured the reporters' feedback as well as the groups' contributions or discussions about their headlines. The facilitator encouraged discussion across the three groups and during this time the visual harvester's graphic was displayed as a stimulus for group discussion. Thus, multiple plausible and possible futures were developed, explored and assessed through the creation of stories of the future using the three horizons framework and the CLA tailored for this workshop.

11. At the end of the workshop, the completed graphic was explained to participants which proved helpful to them because of the Three Horizons approach used in the workshop.

2.3.3. Data analysis

A range of data analysis tools were employed (Mazibuko, 2011). Table 2.5 provides a brief overview of the analyses applied to the different data collection methods.

Table 2.5. A summary of the data collection methods and corresponding methods of data analysis

Data Collection	Data Analysis
Interviews	Content Analysis
Focus Group Discussions	Thematic Analysis
Focus Group: Listing and Ranking	Matrices and Summative Analysis
Focus Group: Trend Analysis	Matrices and Content Analysis
Focus Group: Participatory Mapping	Descriptive, Visual, Overlay, Density and Proximity-related Analysis in ARC GIS
Oral History Interviews	Thematic Analysis using NVIVO
Documentation Analysis	Thematic Analysis using NVIVO
Scenario Workshops	Thematic Analysis using Microsoft Excel
Belt Transects	T-test or Mann-Whitney Test in R, Chi-squared Test and Non-Metric Dimensional Scaling
Remote Sensing: Change Detection Maps	Change Detection using LULC Change Analysis in ARC GIS, and Landscape Metric Analysis using QGIS Lecos plugin

2.3.3.1. Ecological surveys: analysis

All count data were tested for normality (Table 2.6). If normally distributed, a *t*-test was used to examine differences in means between the sacred sites and their counterfactuals. This applied for variables such as tree density, species richness and diversity, the proportion of harvesting, measured deadwood, mean

ground cover and dung. If the data was not normally distributed, then a Mann-Whitney test was used. Non-metric dimensional scaling (NMDS) was applied to analyse species composition. For proportions such as the stem size class profile and extent of harvesting, a Chi-squared test was used. All tests were done using R except for the analysis of the species composition which was done in PCord (ver7).

Table 2.6. A summary of the different forest condition measures and their corresponding statistical analysis.

Forest condition measure	Calculation	Statistical analysis
Plant density	<p>Woody stem counts were converted into mean densities (plants/ha) and were calculated for (adult) woody stems with a diameter ≥ 5 cm from the transect data.</p> <p>Mean densities were also calculated for (juvenile) stems with a diameter < 5 cm from four subplots per transect.</p> <p>Mean densities for woody stem count for all plants, i.e., including adults and juveniles, were also calculated. It should be noted that plant density excluded stems that were dead or 100% harvested.</p>	<p>A normality test using Levene's test.</p> <p><i>t</i>-test was applied to compare plant stem densities between the sacred and non-sacred paired sites for adult woody stems, juvenile stems and all woody stems.</p>
Population structure	<p>Size class distributions (SCD) were developed from the tree diameter data at 5 cm increments, i.e., by counting the number of stems in each of the 5 cm diameter classes calculated as the proportion of stems, as a graphical visualisation.</p> <p>Quotients were calculated between the successive size classes as the ratio of the number of stems in the successive size classes. The following equation was used:</p> $Q = N(i - 1) / N_i$ <p>where $N(i - 1)$ is the number of stems in i previous class and N_i is the number of stems in class i (Martins and Shackleton, 2017).</p>	<p>The shape of the SCD and quotients between successive size classes were presented graphically to examine population stability (Venter and Witkowski, 2010; Martins and Shackleton, 2017).</p> <p>Thereafter, the SCD (the percentage of stems across the diameter size classes) between the paired sacred and non-sacred sites was compared using a Chi-squared test.</p>
Species richness, diversity and composition	<p>The number of woody species per transect for adult stems and juvenile stems were counted and represented species richness. Means were calculated per forest.</p> <p>The Shannon-Weiner diversity index was determined by drawing on species richness and the number of stems per species. The mean diversity was calculated per forest type.</p> <p>Species composition was based on the stem count data for each species across the sacred</p>	<p>A normality test using Levene's test.</p> <p>The differences in species richness and mean diversity scores for adult stems and juvenile stems between the paired sacred and non-sacred forests were tested via <i>t</i>-test.</p> <p>Species composition data was analysed using Non-Metric Dimensional Scaling (NMDS).</p>

	and non-sacred communities.	
Extent of harvesting	Harvesting impacts were reported in two ways: The first included the number of stems with any signs of harvesting calculated as the proportion of stems harvested per transect. The second included the number of stems according to the extent of removal through harvesting as per Cunningham's scale (Cunningham, 1992).	The percentage differences between forests were tested for normality using Levene's test and thereafter, tested via <i>t</i> -test. The extent of harvesting between the paired sacred and non-sacred sites was compared using the Chi-squared test.
Deadwood abundance	The total average of the diameter of deadwood from the four plots per transect was calculated (as a representation of each transect), for each site.	A normality test using Levene's test. Differences between forests were tested via <i>t</i> -test.
Dung: density and type (cow, goat, eland, etc.)	The amount of dung from livestock and wild animals were counted for all sites and the means were calculated, and then expressed as a density (m ²), i.e., the number of dung per transect/ by the total area of the transect.	A normality test using Levene's test. A <i>t</i> -test was applied to compare the wildlife and livestock dung count between the sacred and non-sacred paired sites.
Ground cover - twig/leaf litter - bare ground -herbaceous - rock - human litter	The visual estimates based on Walker's scale (Shackleton <i>et al.</i> , 2003; Steele <i>et al.</i> , 2015) as an average percentage were calculated for each ground cover category for four plots (as representation for the entire transect), for each site.	A normality test using Levene's test. A <i>t</i> -test was applied for each ground cover as the mean ground cover between the sacred and non-sacred paired sites.

2.3.3.2. Forest maps

Remote sensing (RS) analysis was used to help determine SF condition in relation to size and connectivity. RS techniques involved:

2.3.3.2.1. Land use and land cover change analysis

The imagery for the study areas were extracted from Google Earth (GE). The images were manually geo-referenced using ground control points (GCPs) collected directly from Google Earth to ensure spatial accuracy. The images were georeferenced to ensure spatial alignment across time periods. Radiometric correction was applied to enhance visual consistency and comparability by adjusting the brightness and contrast levels. Features such as wetlands and roads were digitized and clipped out of the image to reduce noise in the classification and eliminate the need for extensive post-smoothing. Each image was then classified in ArcGIS 10.3 into two classes using a supervised classification technique known as Maximum-likelihood classifier. Supervised classification was used based on preconceived

knowledge obtained through ground-truthing during the ecological field surveys. This made supervised classification more suitable than unsupervised methods, which rely solely on spectral signatures without field-based reference points. Training sites for the two classes (Forested and Degraded) were manually collected from each successive image through digitising. Here, forested refers to intact forest areas, while degraded refers specifically to forested areas showing signs of disturbance, distinguished primarily by colour. Non-forest land cover types in the image, such as wetlands and roads, were separately digitised and clipped out to reduce noise in the classification and eliminate the need for extensive post-smoothing. Each classified image in Geo-tiff format were exported from ArcMap 10.3. The classified LULC data was used to analyse major landscape composition changes for the successive years (Table 2.3). Visual analysis (Figure 6.3) included changes detected for (1) land cover conversions (e.g., from forest land cover to degraded forest), and (2) attributed these changes by illustrating what LULC was gained or lost. Therefore, the comparison of the successive LULC maps and their respective classifications detected the land cover conversions (Lambin, 1999). These changes were later quantified using landscape metrics (below) to examine the vegetation dynamics of the different vegetation types (Bellon *et al.*, 2020). Before the landmetrics were run, an accuracy assessment was conducted. A confusion matrix accuracy assessment was performed for each classification. Reference data were collected from each GE image using randomly placed points, with 10 points per hectare. The reference points from each GE image were placed on the matching classified image and were compared. The recall, precision, and F-score were all greater than 0.97 for each of the classified images

2.3.3.2.2. Landscape analysis using landscape metrics

Landscape metrics are algorithms to quantify specific spatial characteristics (Uuemaa *et al.*, 2009). These may include the size, number, density, and shape of a mosaic of landscapes, patches or a cluster of patches. Landscape metrics serve as an important tool in the analysis and understanding of landscape structures and changes (Uuemaa *et al.*, 2009). The LULC changes were mapped and quantified using landscape metrics. There are several quantitative landscape metrics but for this study, the following were quantified using pixel-area estimates: Land cover, Landscape proportion, Edge length, Edge density, and Number of patches (Table 2.7). These metrics were used to examine and indicate land cover conversions (e.g., from forest land cover to agricultural or degraded forest). These metrics were computed from each classified image using the Landscape ecology Statistics (LecoS) plugin available in QGIS 3.24.3. The following parameters were used Raster>Landscape ecology>Landscape statistics>Landscape analysis. The plugin computed the various metrics, of which the output was tabulated within QGIS. Thereafter, a two-way ANOVA test was used to compare the metrics for the different periods across the paired sites. However, due to insufficient data points, the data were visually analysed for differences (Table 6.4).

Table 2.7. Landscape metric definitions

Landscape metric	Description
Landcover	The total number of cells for each class in a classified land cover map/grid (which are multiplied by the exponential cell size values).
Landscape proportion	Indicates the percentage of landcover class types, e.g., 28% farmland, 78% natural forest, etc.
Edge length	Edge length equals the length of the perimeter of any designated patch. This serves to demonstrate whether the (forest) patch has expanded or shrunk, if the latter, it would indicate the forest is under threat.
Edge density	Quantifies the edge length divided by the land cover or total area of the class of the landscape. The greater the edge density, the greater the habitat is fragmented.
Number of patches	Quantifies and reflects each habitat class, e.g., 5 patches classified as farmland, 2 patches classified as natural forest, etc.

2.3.3.3. Participatory maps: visual, overlay and proximity-related analysis

The results from the participatory mapping (PM) were captured and saved in Google Earth (GE) as KML files. The KML files were imported in ArcGIS and converted into shapefiles. The shapefiles were displayed as points and polygons (vector data) to create vector layers for each theme, e.g., ecological layer, tourism layer, cultural layer, etc., which were digitised onto a geo-referenced map (Mialhe *et al.*, 2015; Koskinen *et al.*, 2019). As per Fagerholm *et al.* (2020), the vector layers were analysed in two phases through exploration and explanation (Figure 2.5). First, the detection and correction of inaccurate spatial records, overlaps, and the reclassification of vector data in relation to available attributes was done through (univariate) descriptive and visual analysis (Table 2.8) (Fagerholm *et al.*, 2020).

Table 2.8. Definitions for the different GIS analyses used to analyse PM data.

Analysis	Description
Descriptive	Involves simple analysis of attribute data, i.e., simply describing the data without analysing the causes for or the relationships between the data (Grekousis, 2020).
Visual	Involves the visualisation of spatial patterns through the “generation of multiple simultaneous views or overlay maps” (Fagerholm <i>et al.</i> , 2020).
Overlay	Overlay analysis involves “multiple inputs which are overlapped to generate new information” and is “common for viewing different mapped attributes or studying their relation to other geospatial data” (Fagerholm <i>et al.</i> , 2020).
Proximity-related	The proximity-related analysis considers the geographic distance between features by identifying features that are closest to one another and calculating the distances between these related features.

Second, an overlay analysis was done in which each vector layer was overlaid to create a thematic map. The thematic map was visually analysed to better understand the geospatial data of the bioculturally significant area. For example, ecologically significant zones were primarily found in culturally

significant zones or use zones were found outside culturally significant zones (Fagerholm *et al.*, 2020). The thematic map was further analysed with a digital elevation model (DEM) applied to it. The DEM represents elevation values over a topographic surface, showing height of a location or feature relative to sea level. Thereafter, a kernel density analysis, a nonparametric method that estimates density based on the spatial distribution of data points (Kuter *et al.*, 2011), was applied. Third, a proximity-related analysis was also done and applied to the thematic maps wherein multiple distance bands (circular buffer analysis) were developed from the forest edge into the core of the forest to examine the distribution of the participatory data (or thematic map) to determine spatial patterns based on “convenience”, i.e., road or pathway access (Fagerholm *et al.*, 2020).

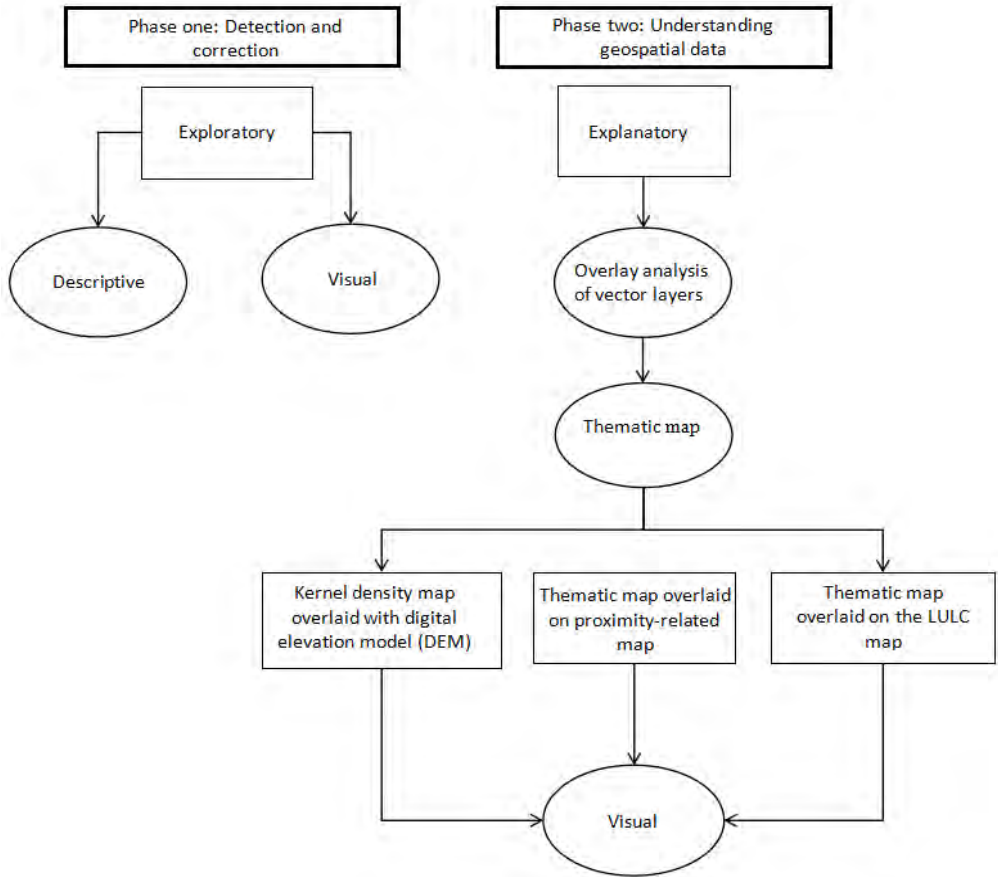


Figure 2.5. Flow chart illustrating a two-phased approach adopted for the PM data analysis.

The thematic map was also overlaid onto the LULC maps to strengthen the participatory findings and to help understand the spatial patterns found in the LULC findings based on local knowledge obtained. In this way, the participatory data enabled the calibration of LULC data for interpretation of what is being 'remotely' sensed. Finally, the data from the participatory maps and their respective discussions from the different groups were compared to understand diverse perspectives and values, linking different opinions and feelings to specific places (Ralls, 2021).

2.3.3.4. Listing and ranking: matrices and summative analysis

Each participants' ranked list (Section 2.4.2.3.2) was consolidated and inserted into a matrix that contained the list of all the benefits in rows, whilst the columns contained the ranks from one to five. The matrix displayed the total percentage of participants who assigned one benefit in each rank (refer to Tables 5.1 and 5.2). For example, if building material was ranked first by seven participants, it would account for 35% of the total, and if it was ranked second by five participants, it would represent 25%, and so on. Thereafter, the weighted ranking was calculated to determine the most valued ranked benefit. This involves:

1. The percentage of participants for each rank multiplied by its corresponding assigned weight. The assigned weights for each ranking are: (Rank 1 = 5, Rank 2 = 4, Rank 3 = 3, Rank 4 = 2, Rank 5 = 1).
2. The sum of these values as the total weighted value is calculated for each benefit.
3. The highest weighted ranked value is the benefit most valued.

The overall values systems were derived from the participants' reasons for their ranked lists of benefits. The reasons for each ranked benefit were extrapolated and consolidated to determine the criteria participants applied for ranking their benefits. As such, a list of criteria was developed for Mabasa and Mazizini and enabled the identification of value systems that the local community members attached to the SF in each site. Summative analysis was used to analyse the findings from the matrix, and the responses during the discussion. Summative analysis involved the comparison of keywords and content for interpretation of the underlying context (Hsieh and Shannon, 2005). Additionally, participants were asked to list reasons as to why their five benefits were ranked accordingly, for their ranked lists were developed. From this criteria developed, the values and preferences of the participants were established (Schreckenber *et al.*, 2016). This was used to understand and determine the value system participants based on their ranked lists.

2.3.3.5. Trend analysis: matrices and content analysis

The data obtained from the trend analysis was analysed using matrices and content analysis. The trend analysis datasheets completed by each participant were consolidated, and the final results were tabulated. These matrices show only the responses that contributed to the highest percentage. Responses received for the minority were also explained. The discussion captured during and after the trend analysis was analysed using content analysis in which codes were extracted from the data to develop categories or themes. Hence, various statements from the discussion were grouped into themes. These themes were later added to the overarching themes developed for the thematic layout for the results chapter.

2.3.3.6. Interviews: content analysis

Content analysis was used to analyse the interviews. Content is used to interpret meaning from the context of the text data to describe phenomena, making the textual material more manageable into

content-related categories. Content analysis is a “subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh and Shannon, 2005). Similar words, thoughts, statements, or phrases from the transcripts were examined, thereby classifying the large amounts of data into categories based on codes designed in accordance with the nature of the statements and depending on how they related to one another or represented similar meaning (Yuan *et al.*, 2019). Thus, codes were derived from the exact words in the transcripts that appeared to capture key thoughts or concepts. The codes were sorted into different categories (Hsieh and Shannon, 2005). The results from the categories were compared and contrasted, and a summary of the information was developed.

2.3.3.7. In-depth focus group discussions: thematic analysis

The data from the FG discussions were analysed using thematic analysis. Coding was used to create themes. Themes were created by exploring similarities in relationships between the different chunks of data through identification, analysis and interpretation of patterns of meanings (Shively, 2011). This was done to identify patterns of meanings as a way of interpreting and making sense of the data. The data, i.e., the responses of the participants, were first transcribed from isiZulu to English as handwritten notes. These notes were later entered into Microsoft Excel in which the process for thematic analysis began. The data was colour-coded into themes based on both the objectives of the study and other relevant points of interest. Microsoft Excel's filter was applied to the data to subsequently sort the themes based on their colour codes. Once this was done, the data was analysed further, by relating the themes to each other. Hence, themes expanded, and new themes were created (NNGroup, 2019). The findings were put into a coherent flow of the themes developed and included quotations where necessary. The themes generated were as follows: local beliefs and practices, SNS history and sacred significance, relationship shared with the sacred forest, forest use, sacred site governance, and ecological relevance. The data for each of these themes were later added to the overarching themes (sacred significance, sacred forest governance, biocultural associations and threats, ecological significance, and sacred forests conservation) developed for the thematic layout for the results chapter.

2.3.3.8 Document analysis analysed using thematic analysis

The document analysis in this study involved reviewing documentation that was analysed by coding of content into themes or categories. The documents were either scanned or photographed and printed. Relevant or applicable information was highlighted, and notes were made on the printed copies. Thereafter, the data was input into NVIVO in which the data was coded and categorised. Once the analysis in NVIVO was complete, the analysed or categorised data were included in the themes developed for the oral histories as the documents were used to corroborate, refute, elucidate or expand on the oral history findings and across the other data sources where applicable.

2.3.3.9. Oral histories analysed using thematic analysis

Due to the complexity of the social-ecological systems and biocultural relationships, the synergies and conflicts between drivers and cascades of effects, a systematic method was used to analyse the oral history interviews. This included a four-staged analysis (as per Firouzkouhil *et al.*, 2015):

1. Coding involved the familiarisation and organisation of the data, which was followed by extracting initial codes. This process was done in NVIVO using the word query feature (displaying 100 words with a minimum length of 4) to familiarise myself with the data and aid in creating codes.
2. The initial codes were grouped to create sub-categories through comparison of the codes against one another and organising them alongside similar codes (Shively, 2011). These sub-categories contained related codes which were reviewed.
3. Sub-categories were further grouped based on thematic similarities to provide the main categories. This was done using the word cloud. Here emphasis was placed on key concepts derived in conjunction with the documentation for credibility of some of the oral history interviews.
4. Once the main categories were established, these were used to develop a cohesive and logical narrative. It is important to note that local histories are personal and may be unique, therefore, the analysis took into account single participant insights and not just commonalities from across several participants.

Once the analysis in NVIVO was complete, the causal relationships and their implications were determined using thematic analysis in conjunction with the basic principle of the DPSIR as a framing tool was applied. The framing tool helped to identify and to better understand the causes and implications, which made it easier to assess the outcomes of these or establish their potential impacts. For example, Driver: cultural segregation, Pressure or Causes: the establishment and acceptance of the missionary church, State: the rise in churches and churchgoers, Impact or Consequences: abandoned ancestral practices, changes in cultural practices or lack in the authenticity of Zulu customs, Responses: (were established in scenario workshops). Due to the complexity of the biocultural system concerning the feedback loops within these social-ecological systems, the DPSIR was not applied in the reporting of the findings. Instead, the reporting of the data relied on triangulation and underwent a thematic analysis. Lastly, the findings (including the findings obtained from the document analysis) were used to develop the “negative” headlines for the scenario workshops (Table 2.4) and helped to develop questions for the participants, aiding in interpreting their responses.

2.3.3.10. Scenarios- comparative analysis

The approach used in this study to analyse the positive futures developed by the participants was adapted from the method outlined by Hamann *et al.* (2020). The analysis involved three steps. First, the headlines were systematically analysed to provide a detailed description of the desired headlines developed by the groups, based on the negative headlines provided to them. This was captured from the

group discussions during their development. Second, a comparative analysis was conducted to identify common and divergent themes raised by the groups working on the same negative headlines. Of the three headlines (Table 2.4), only the youth headline was discussed in the first workshop at each site. Consequently, a comparative analysis was applied across the study sites for the youth headline. Third, the solutions proposed by participants to achieve their desired futures were explored and categorised. The data from the group discussions were coded in Microsoft Excel using a matrix to identify thematic overlaps. These overlaps helped to identify recurring issues and solutions, which were then grouped. Comparisons were made across the groups and sites. The categorisation of the participants' solutions into cultural and ecological measures, provided a deeper understanding of shared community values and governance priorities.

2.4. Ethical considerations

This study was approved by the Rhodes University Department of Environmental Science Ethics Committee (Ethics approval number: 2023-2715-7915) and was carried out in accordance with the Rhodes University Standard ethics guidelines. Permission to work in the area was granted by the traditional local authority of each study site where the purpose of the research was explained. I observed and applied the principles of the Rhodes University research ethical guidelines. These principles included acquiring informed verbal and written consent, confidentiality (where applicable), and having due regard for the participants' customs and cultural heritage. Only those participants who gave their consent, through either verbal agreement or written consent, were identified in the study. All but one participant gave their consent to be recorded during the sessions and to use their real names in this study. Participants were also notified of their right to withdraw if at any point they changed their mind about participating in the research, wanted to leave during the session or if he/she was unable to attend the full session. Participants were informed that they were free to notify me of their withdrawal at any time and did not have to provide me with a reason.

2.5. Positionality

As a female, Muslim, mixed-race researcher from a multi-racial and multi-religious background, my identity inevitably shaped the way I engaged with participants and affected how I was perceived in the field. Growing up in a diverse environment, where I was exposed to both Christianity and Islam, while growing up with Zulu and broader African friends and family, provided me with a cultural grounding that facilitated trust and meaningful interactions. My familiarity with certain cultural customs, such as head coverings and practices of respect, allowed me to navigate social interactions and cultural awareness concerning sensitivity, particularly when engaging with elders and traditional authorities. This facilitated respectful engagements with participants who valued modesty and religious consciousness. While I share certain cultural practices with the communities studied, I was also aware of my "otherness", which positioned me as an outsider due to religious or socio-cultural differences. My perceived "otherness" also worked towards my advantage as it created opportunities for richer data

collection because participants often provided more detailed explanations of their beliefs and practices than they might have with an assumed insider. My ability to understand much of what was spoken in Zulu as well as being able to speak a little of the local language served to foster trust with the participants and also contributed to my “acceptance” into the community. The extent of my acceptance into the community was affirmed by the elderly who were honoured to make me a *umakoti* (daughter-in-law) in their family.

Furthermore, my background in social sciences strengthened the interdisciplinary nature of this research, which sought to understand cultural values and beliefs in relation to biological conservation outcomes. My social science background also allowed me to critically engage with governance structures, power dynamics and the role of belief systems in conservation. As such, my methodological choices, particularly participatory approaches prioritised community voices and helped to mitigate power imbalances by ensuring a process of reciprocal knowledge exchange. I strove to emphasise the importance of participant voices and lived experiences, and aimed to ensure that the voices of the communities remained central to my work. I also remained committed to ethical engagement to ensure respect and collaborative knowledge production. My background gave me an appreciation for indigenous knowledge systems, spiritual practices, and the cultural significance of SFs.

Part 2: Historical and Cultural Context

Chapter 3: The cultural-historical context of the indigenous communities and their sacred forests

3.1. Introduction

Sacred forests have long been recognized as central to the spiritual and cultural identities of many indigenous and local communities worldwide (Wild *et al.*, 2010; Verschuuren *et al.*, 2010). These forests are often imbued with deep historical and spiritual meaning and reflect the intricate relationships between people and their natural environment. Many sacred sites have ancient origins created and shaped by human beings and their spiritual interaction with nature (Verschuuren *et al.*, 2010; Hakim *et al.*, 2023). Building on this understanding, this chapter explores the narratives of the cultural-historical context of the Mabasa and Mazizini communities, concerning the Nguni history, and the spiritual significance and ancestral manifestations associated with the SFs. Additionally, the chapter unpacks how the history of these indigenous communities differs, i.e., in their establishment, and how these differences have shaped manifestations of the SFs. Moreover, SFs have persisted through generations due to their particular governance and conservation measures (Khan *et al.*, 2008; Verschuuren, 2010, Mahaseth *et al.*, 2023).

Due to the sacredness attributed to these forests, there are often established rules, traditional laws, cultural customs and taboos. As a result, sacred sites are typically delineated, protected, administered and managed by the local community, traditional authorities (TAs) or local institutions (Chandran and Hughes, 2000; Pandey and Rao, 2002; Pradhan and Ormsby, 2020) many of which have persisted through generations (Khan *et al.*, 2008; Verschuuren, 2010, Mahaseth *et al.*, 2023). This chapter also examines the various forms of traditional governance that are associated with the SFs, e.g., customs, laws, taboos, etc., which reveal the complexities of ancestral beliefs, traditions, veneration and the spiritual realm.

Apart from the beliefs in the spiritual aspects of SFs, they are also considered to be places in which contact and communication with the spiritual realm or the ‘more-than-human’ reality can take place (Oviedo *et al.*, 2007). Their spiritual significance also plays a role in their protection. The chapter highlights how the spiritual realm of these SFs influences the development of certain cultural protocols, which in turn are understood as representing a form of spiritual governance. In addition, the chapter draws attention to aspects of ancestral retribution by the "guardians" of the forest against violators. The spirituality of SFs (Anwana *et al.*, 2010) and the ‘social fence’, i.e., spiritual governance, (Arora, 2006; Verschuren, 2010; Mahaseth *et al.*, 2023) invariably imbue a traditional conservation ethic. The protection of SFs (through traditional forms of governance) influences use based on what is permitted or prohibited, for example, seeking solace or sustenance from the forest. Apart from the spiritual significance and belief system that contribute to the sacred manifestation of these forests, they are also defined by their use and value, which are influenced by their form of governance and management practices (Nganso *et al.*, 2012; Rath *et al.*, 2020).

Given SFs generational existence, this chapter particularly draws on the perspectives and stories of the elders. These stories offer various perspectives on the kinds of relationships that exist with the SFs and how notions of spirituality and beliefs have shaped the lives and interactions with the forest, especially for those living alongside SFs. The results are presented in the form of narratives. Attention is given to each community's history, sacred manifestations, beliefs, traditional customs and complexities of traditional forms of governance. The results presented in this chapter provide the context for understanding past biocultural associations of the SFs. This context is important in determining if change has occurred. If so, how much change has occurred, what are the reasons for these changes and what implications have these changes had on the biocultural relations and meanings in the area, particularly in relation to the sacredness of the SFs.

3.2. Objective, research questions and methods

The objective of the chapter is to explore the historical context of the communities and their SF to better understand the biocultural associations. The chapter explores the effects and impact of change and how these may have impacted and influenced the biocultural relations and associations within each community. To achieve this the following research questions were answered:

1. What cultural and spiritual understanding contributed to the establishment of the SFs?
2. Have these cultural and spiritual understandings changed since the establishment of the SFs?
3. What beliefs, sacred histories, etc., contributed to the establishment of the SF?
4. How have these cultural and spiritual understandings and practices contributed to the governance and maintenance of the SFs?

The findings presented here are predominantly from the oral history interviews (Section 2.3) and the document analysis (Section 2.4). The information collected was used to gain an understanding of the local indigenous history during the 1800s and other factors which led to the establishment of the Mabasa and Mazizini communities within the regions that they have come to occupy today. The chapter also includes information from the focus group (FG) discussions (Section 2.1.4) and key informant interviews (Section 2.2). The findings are clearly attributed to the respective sources, i.e., whether from FG participants, key informants, or oral history participants (also referred to as elderly participants). Where the term “participants” is used more generally, it refers collectively to all individuals involved in the study, including FG participants, elderly participants and key informants.

3.3. Results

To better illustrate the link across burial sites, ancestral spirits, and custodianship, Figure 3.1 maps how the sacred spaces, spiritual beliefs and governance practices interconnect in shaping the cultural and ecological governance of sacred forests. The figure illustrates how these elements are mutually reinforcing, shaping the governance of the SF.

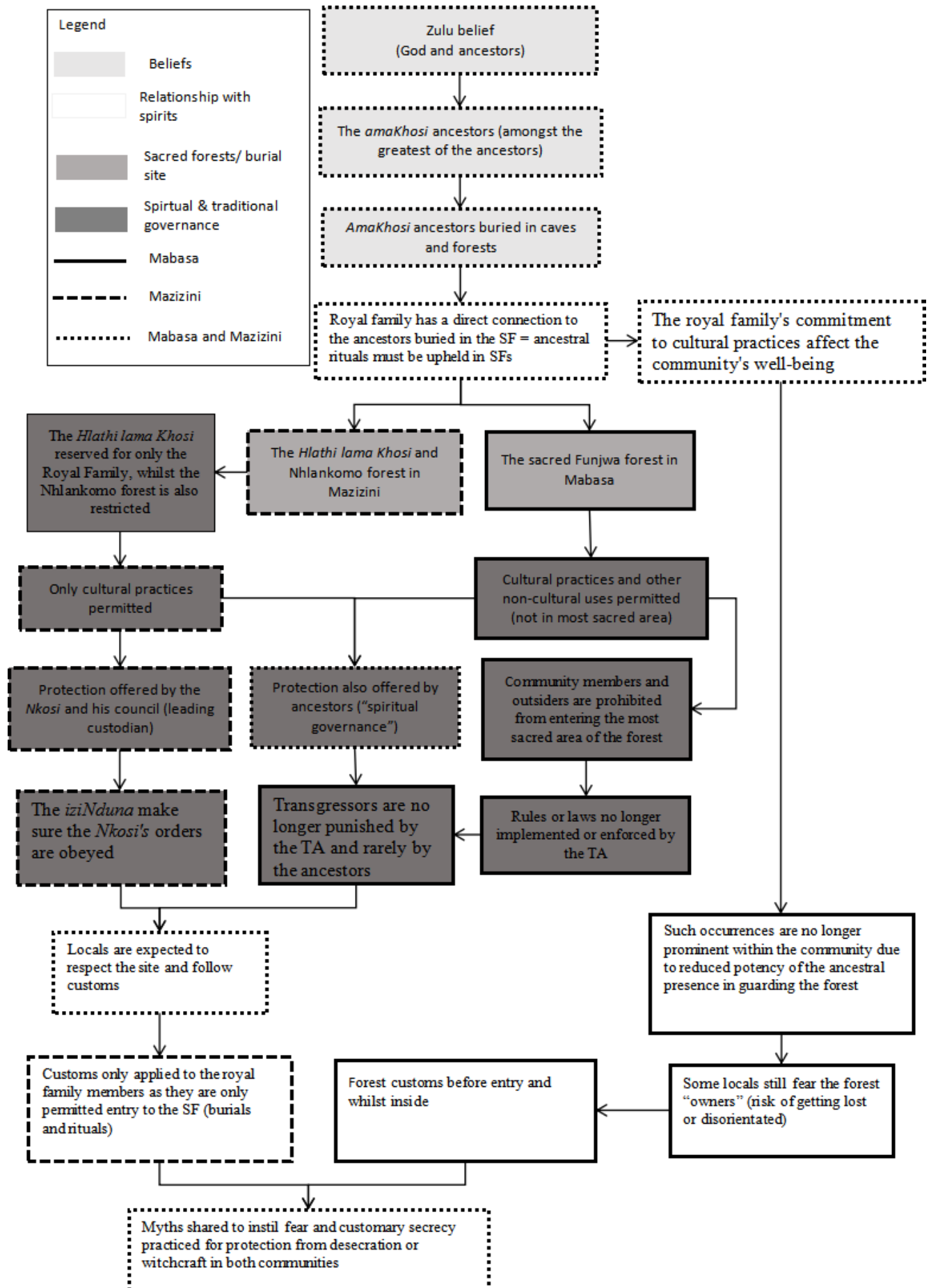


Figure 3.1. The interconnections between burial sites, ancestral spirits and custodianship through traditional and spiritual governance. The figure illustrates how these elements are mutually reinforcing, shaping the governance of the SF.

3.3.1. Cultural histories and sacred significance

3.3.1.1. Mabasa site: Funjwa's legacy

The oral history narratives collected from Mabasa, in conjunction with the published account by Bryant (1929), *Olden times in Zululand and Natal: Containing earlier political history of the Eastern-Nguni clans*, revealed that Funjwa's relationship with the people of Mabasa began when tensions broke out between the Ndwandwes and Zulus in the early nineteenth century. According to Bryant (1929), in 1816 Dingiswayo kaJobe, head of the Mthethwa state, was captured and killed by Zwide KaLanga, head of the Ndwandwe. At the time the Ndwandwe had control and a significant portion of the land in the region. However, they were forced to abandon their lands in response to Shaka kaSenzangakhona, who had come to power with the help of Dingiswayo. Shaka attacked the Ndwandwe in 1818 and again in 1819. During this second battle, the Ndwandwe were aware that they were losing. Consequently, some of the warriors fled and they were defeated. The Zulu took over the Ndwandwe territory.

According to both the oral histories and Bryant's (1929) historical account, Zwide and his remnant forces retreated, whilst others fled in fear of persecution. Mr Thwala's oral testimony revealed that it was during this time that a warrior named Funjwa also took flight, which later resulted in his accession to the Chieftaincy of Mabasa. Some of the other oral history participants shared that Funjwa fled from Nongoma to Mabasa and settled on abaKwaManzi land as he was unable to cross Lake Sibayi. In contrast, Prince Nxumalo and Mr Nxumalo, along with Bryant (1929), recounted that Funjwa fled to Mozambique and later returned to South Africa to seek refuge in Mabasa, which was formerly known as Malimbana. At the time Malimbana was ruled by *Nkosi* Manzi of the Manzi and Qwabe people. However, it appears that some aspects of Bryant's (1929) historical account of the Mabasa community and Funjwa are contestable, such as the lineage provided for Funjwa and the claim that he arrived in the area with a wife. Interviews with community members indicated that certain details, likely related to royal succession, are considered confidential and could not be disclosed. This suggests that Bryant may also not have had full access to sensitive information during his research. For example, the account of Funjwa's arrival with his wife conflicts with oral histories shared with me, though the specifics cannot be revealed here due to their confidential nature.

Mr Thwala provided a detailed account which was passed down to him by his father and grandfather of how Funjwa became recognised as the founder of the Mabasa people and the significance of the Funjwa forest. Mr Thwala relayed that Funjwa took refuge in, what is now called, the Funjwa forest. While he was in the forest, he encountered *Nkosi* Manzi's herdsmen who had brought the *Nkosi's* cattle to the lake. The herdsmen would interact with Funjwa. Funjwa shared braaied meat/venison with them, which allegedly they had never tasted before. The herdsmen returned to their village and spread the news about

a man by the lake who provided them with tasty meat. The locals and the *Nkosi* were intrigued. *Nkosi* Manzi ordered his herdsmen to bring some meat back for him to taste and for Funjwa to be brought to him. The herdsmen did as they were told. The herdsmen informed Funjwa that he had been summoned by *Nkosi* Manzi. But Funjwa was hesitant. He feared that the herdsmen were spies and that *Nkosi* Manzi was of the Zulu clan sent by King Shaka. Funjwa's fears were validated. During Shaka's reign, his warriors would exterminate rival clans and consolidate the remnants of these clans to build a large following (Pearse and Byrom, 1989), Funjwa was afraid of being captured and so he politely refused. *Nkosi* Manzi persisted and went to meet Funjwa himself, of which Mr Thwala painted a vivid tale:

Funjwa being a "foreigner" to the land was unaware of the hippos and so decided to build his shelter in the trees....the Nkosi asked Funjwa "Who are you and where did you come from?" as the Nkosi looked around and saw how and where this man built his home, an unusual home, on top of trees...Nkosi Qwabe [Manzi] further asked, "Why are you alone here?" [to which] Funjwa told him his name and told the Nkosi that he was from Nongoma. Funjwa was initially hesitant to give the reason as to why he was in Mabasa and eventually told the King the truth, i.e., he tried to follow Soshangane's (another warrior of King Zwide's who was the founder and monarch of the empire in Mozambique) tracks, but he [Funjwa] came east and got stuck by the lake. Funjwa explained that Shaka was taking the Nxumalo kingdom by force and that Shaka was killing people...The Nkosi went on to ask him about the unique meat, "How do you make it?", to which Funjwa said, "I use fire".

Funjwa finally agreed to go to *Nkosi* Manzi's homestead. Upon their arrival, *Nkosi* Manzi asked Funjwa to prepare some meat. According to the narrative, Funjwa revealed that he uses *uzwathi* (making fire using sticks). He proceeded to demonstrate this to *Nkosi* Manzi and his subjects. "They were amazed that fire was coming from the sticks", said Mr Thwala. Consequently, Funjwa was named Mabasa of which the derivative is *basa* (to make a fire) in reference to his incredible skill. Bryant (1929: 284) in his publication also documented how the people of Mabasa named Funjwa "Mabaso (Mr Fire-Kindler)", the man who introduced fire to the then Malimbana community.¹ The meat was given to Funjwa to cook. He demonstrated two ways of cooking (barbecuing and boiling) the meat. Mr Thwala emphasised that this was a crucial moment. Funjwa gained the trust of the King and his people. They ate the meat Funjwa had prepared and were pleased that it tasted the same as the meat he had shared with the herdsmen. They knew that he was being truthful. Funjwa then requested *izimbiza*, clay pots, traditionally used to make Zulu beer, and proceeded to boil the meat. Before being introduced to barbecuing, the Manzi people

¹The knowledge and use of fire clearly predate the story shared by the oral history participants, which is also recorded in Bryant (1929) as attributing the introduction of fire to the local community by Funjwa. Unlike some other southern African accounts, such as Junod's 1920s ethnography *Tsonga: Life of a South African Tribe*, this story is not considered metaphorical. Rather, it is believed to be a true historical event, with the community's name reflecting the act of fire-making attributed to Funjwa, who is remembered for introducing this 'remarkable skill'.

consumed dried or raw meat, or cooked/baked their food (grain, meat, etc.) with the heat of the ground in a pit.

Funjwa quickly became popular because he taught the KwaManzi people how to make fire. He stayed with the royal family in their homestead and became increasingly trusted. As a consequence, *Nkosi* Manzi later appointed Funjwa to oversee and manage his homestead instead of herding cattle with the other men. But Funjwa later found himself in some trouble that could have broken *Nkosi* Manzi's trust. Funjwa feared the outcome of this and construed a plan to protect himself from execution or exile. To save himself, Funjwa persuaded *Nkosi* Manzi that his kingship was at risk because Shaka was raging wars against neighbouring Nongoma and killing *amaKhosi* (Chiefs) to take over their land. Funjwa proposed that he would train *Nkosi* Manzi's men to fight (because *Nkosi* Manzi and his people were not trained fighters) in preparation for a possible war against Shaka. Funjwa divided the men into two groups which consisted of the younger and older regiments, and organised a contest between them. During the contest, *Nkosi* Manzi and Funjwa went head-to-head into "battle", resulting in *Nkosi* Manzi's fatal injury. Upon the realisation of *Nkosi* Manzi's death, Funjwa called off the contest stating that "we shouldn't kill each other," (Mr Thwala). Despite the locals' suspicion that Funjwa's actions were deliberate, some believed it was common practice in the past to execute and take over kingships, whilst others believed that it was a fatal mistake. Regardless, Funjwa became accepted as the new *Nkosi* of the Qwabe and Manzi people. Upon succession to the kingship, *Nkosi* Funjwa announced to his people that they would be known as the Mabasa people. The establishment of the Mabasa people is also found in Bryant (1929: 284), "raised up with her [the previous *Nkosi*'s wife]...a new dynasty and a new clan...and resurrecting them [Malimbana] as a new people, with a new name, his own, Mabaso". Mr Thwala continued his narration, stating that Funjwa led his people to the forest where he initially sought refuge. He encouraged them to build their homesteads inside the forest for safety. According to Mr Thwala, Funjwa, along with members of his family and subjects, were buried in the forest. His first son, Mbungela, was also buried in the forest. It is believed the forest is protected by the ancestors. Mr Thwala described various accounts were recorded of 'visions' of forest users encountering homesteads, and seeing people making fires and cooking in the forest. Over time, as discussed in Chapter 4, the locations of burial sites have been preserved as 'guarded secrets', mainly due to internal politics within the royal family as well as sociocultural changes. The FG participants shared that details of the local history has been subdued. They claimed that accounts of these events have not been given prominence. The lack of knowledge of such has diminished the significance attached to the Funjwa forest. The suppression of history according to the FG participants has eroded the integrity of the cultural heritage and protection of the Funjwa forest.

3.3.1.2. AmaZizi history

Various historical documented accounts exist of when the amaZizi people arrived in the Drakensberg region. According to the historiography of Pearse and Byrom (1989: 38) shared that the amaZizi arrived at the foothills of the Drakensberg mountains during 1700 AD. Other scholars such as Mazibuko (2011

cited in Pearse 1989: 26) indicate that the arrival of the amaZizi at the foothills of the Ukahlamba (Drakensberg) mountains is traced further back in the early 1200s. An anonymous letter addressed to Nkosi Miya in 2014, concerning the *threat to ancient burial grounds in the ancestral lands of the amZizi people*, discloses that the amaZizi arrived in South Africa during the 14th century from Central Africa and were not considered Zulu. Between 1818 and 1828 various events took place which resulted in “the great invasions of the Drakensberg”, and the once peaceful home of the amaZizi were ravaged and depopulated by the rampaging hordes of both Matiwane and Shaka (Pearse and Byrom, 1989: 39).

According to the publication by Pearse and Byrom (1989), *Barrier of Spears: Drama of the Drakensberg*, the attack ordered by Dingiswayo in 1818 on Matiwane of the amaNgwane, resulted in Matiwane requesting Mtimkulu, Nkosi of amaHlubi, to look after his cattle which were not returned to him. Before Matiwane could mobilise his army to attack the amaHlubi, Zwide of the Ndwandwe caught Matiwane off-guard and destroyed and burned everything of the amaNgwane people (Pearse and Byrom, 1989: 41). Matiwane was faced with two options, "he could let his people starve, or he could fall on the nearest source of cattle and land with a ferocity born of desperation" (Morris, 2017: 55). According to the account by Morris (2017), Matiwane chose to settle his scores with the amaHlubi. He massacred all the major Hlubi kraals, recovered his cattle. He went on to destroy all neighbouring amaHlubi subclans. This course of action was taken as a preventative measure to avoid them organising effective resistance. Morris's (2017) account further revealed that the remnants of the Hlubi clans left and crossed through the path of the Drakensberg range, where they found the amaZizi living.

The amaZizi suffered great losses against other Nguni clans during the Mfecane wars because of the once peaceful and "relaxed" life they lived (Mazibuko, 2011). Some of the amaZizi "fled higher up the mountains, finding a refuge in the impenetrable valleys...with the Bushmen" (Pearse and Byrom, 1989:41). According to the oral history interviews, it was reported that the amaZizi, specifically the Miya clan, migrated and settled in the Drakensberg due to the Mfecane wars. They later moved further up to Busingatha in the Royal Natal area (northern Drakensberg mountains) as they fled from the volatile amaNgwane and in fear of clashing with the amaHlubi. The amaZizi under the rule of Nkosi Magangane Miya settled in Busingatha, referred to as *amabeka Nkosi* (kingmakers) (Nkosi Miya). Nkosi Magangane declared that they would no longer run away, which was a pivotal moment in history for the amaZizi. The amaZizi as the first Nguni people to arrive and settle in the Berg mountains, resided alongside the *abatwa* (the San) of whom “the land is, in fact, the *abatwa*’s,” (Mr Mtolo). As pointed out by Pearse and Byrom (1989), the amaZizi lived peacefully with the San as there were no clashes of interests with them. The San were quite different from the amaZizi. According to Nkosi Miya (a key informant), the San lived in the mountains; evident by their drawings in the caves and cliffs of the Drakensberg and were hunters and gatherers. Nkosi Miya further noted that the amaZizi were pastoralists and agriculturists who planted maize and lived above the foothills, but learned how to hunt from the San.

3.3.1.3. Ancestral belief and the sacred forest

The FG participants explained that the Zulus believe in *umVelinqangi* (indigenous concept of God which is considered the source of life), and the presence of ancestors (*amadlozi*). *amaDlozi* are believed to act as intermediaries between the living and the spiritual world. According to the oral history participants interviewed as well as the FG participants, a strong relationship with one's ancestors ensures that one can have a good life on earth. One of the FG participants, Kwanele, also shared another interpretation of *umVelinqangi* as "he whom everything emerged from". Today many Zulu people continue to maintain a relationship with their ancestors while worshipping *Nkhulunkhulu* (the Christianised version of God that was introduced during colonial times). Ancestors remain central to their belief system and continue to be held in high esteem. The *amaKhosi* ancestors are considered the greatest amongst the ancestors and are highly revered. According to the *Nduna* Miya from Mazizini, it has been a long-lasting tradition amongst the *Nguni* to bury the *amaKhosi* in caves and forested patches. As a consequence, the sacred Funjwa forest and sacred *Hlathi lama Khosi* (the forest of the kings) in Mabasa and Mazizini, respectively, are believed to contain their *amaKhosi* burial grounds. In Mazizini, the deceased *amaKhosi* are buried in the forests or caves in the mountains. For example, *Nkosi* Magangane is reputed to be resting on a cliff in uThukela [*Nduna* (headmen title) Miya]. Others have identified one of the ancestral graves of the *amaZizi* in Royal Natal National Park (RNNP) with an *amaZizi* elder (Mazibuko, 2011). The grave is identified as belonging to *Nkosi* Magangane. This area of the park is referred to as *kwa-Magangane* (Magangane's place) by the locals. This finding was verified during a meeting Mazibuko (2011) had with the *Nkosi* Mthetho (also known as Mthethwa) and his council. Likewise, Mazibuko (2011) referred to Pearse (1989) concerning claims that *Nkosi* Sdinane, the son of *Nkosi* Magangane, was buried in RNNP. Unfortunately, the *amaKhosi* burial grounds were later changed to the *Hlathi lama Khosi* on the Ndlankomo mountain (Chapter 4). The Ndlankomo mountain is also of significance to the community because it is considered sacred for three reasons (1) the burial grounds of the *amaKhosi*, (2) on which other important cultural practices take place and (3) it is considered the closest place to God due to the belief held by the *amaZizi*. Similarly, the website *amaGug'esizwe: Treasure of the Nation-the Drakensberg of the amaZizi and the amaNgwane*, highlights the significance of the Ndlankomo mountain which has a significant spiritual meaning for the *amaZizi*. In response to the meaning attached to the Ndlankomo mountain, hikers are requested to avoid traversing the slopes of this mountain. The *Nduna* (The *Nkosi*'s headmen) also mentioned that generally, the mountains were important to their forefathers. Similarly, the *inyanga* explained that the mountains and their gorges are important, as the former is believed to be the closest place to God, whilst the latter were used as sites to pray for rain.

Due to the mountain's sacredness, all other indigenous forests on this mountain including the Ndlankomo forest are considered culturally significant. However, many of the FG participants argued that the Ndlankomo forest is also considered "sacred" mainly because it is a part of the wilderness. The wilderness is significant to the *amaZizi* because it offers a means for ancestral connections, and it contains many medicinal plants. Nonetheless, the FG participants explained that the sacredness of the

Ndlankomo forest varies within the community, i.e., dependent on a person's spirituality and their spiritual attachment to the forest. There were some claims from the FG participants and key informants that the surveyed forest contained royal burial sites because some of the Miya family members lived in the forest and surrounding areas, evident by the presence of homesteads found inside the forest. The FG participants shared that it is believed to have been a common practice for Zulus of past generations to reside in forested vegetation. In contrast, the *inyanga* (herbalist) was both hesitant and ambivalent in stating whether there were burial sites within the Ndlankomo forest, yet with affirmation he stated that the Royal Natal Forest contained burials of the royal family, i.e., in reference to *Nkosi* Magangane and Sdinani. Similarly, in Mabasa "all the first and old kings are buried in the Funjwa forest" was stated by Mr Zikhali. It was later discovered that another SF exists in Mabasa called Emzinyeni. Within this forest later *amaKhosi* are buried (Chapter 4). Some elderly participants indicated that the change in the burial location of the *amaKhosi* was due to internal royal family politics. These participants preferred not to discuss the details of this change for two reasons: (1) cultural taboos dictate that matters about the royal family should not be discussed as a form of maintaining respect, and (2) uncertainty about the real reasons behind the internal politics.

Apart from the burial of the *amaKhosi*, there are other sacred manifestations associated with the forests. There are spiritually significant plant species found in the forests such as *imphepho* (*Strychnos decussata*) and *umlahlankosi* (*Ziziphus mucronata*). Both species are considered cultural keystone species (CKS) which is "reflected in the fundamental roles these species have in...spiritual practices" (Garibaldi and Turner, 2004: 4). These CKS allow for community members to connect with their ancestors for many reasons (for detailed explanation see Joyce, 2009). For example, *umlahlankosi* is used to return the souls of those who have passed far away from their homes and need to be brought back to their homestead. Whilst, *imphepho* is used in a ritual to either connect to one's ancestors when a person is sick to "[...] return him/her to good health", (Mrs Ntuli) or to offer guidance when in hardship. In Mabasa, a *sangoma* also attributed the forest's sacredness to the powerful medicinal plants that can be found in the forest. These medicines are believed to cure and protect people. Focus group participants and the ward councillor stated that the Funjwa forest is well known in KZN for its "strong *muthi*". Because of this, *amaKhosi* from other communities encourage their people to use the Funjwa forest with respect because of its medicinal and cultural significance.

3.3.2. Sacred forest governance

3.3.2.1. Traditional governance

At both study sites the *Nkosi* and his council establish the rules of the land, including the management of the forests by the traditional authority (TA). In Mabasa, the ward councillor explained that the TA plays the leading role in managing the SF. He stated that people are meant to seek permission from the TA before entering the forest, but this rule is not always followed (Chapter 4). Similarly, the *Nduna* of Mabasa mentioned that community members and outsiders are prohibited from entering the most sacred

area of the forest to ensure the site is venerated and is kept intact. The sacred area is supposedly limited, but these rules or laws have not been implemented or enforced by the TA. The lack of enforcement was echoed by the FG and elderly participants who stated that the SF is not managed by the TA and that there are no laws prohibiting access or use in the forest (Chapter 5). Despite these perceptions, the *Nduna* acknowledged that he is responsible for safeguarding the forest and affirmed that he has the capacity to safeguard the forest. He also added that there is no need for active enforcement because the local community has been taking care of the forest (Chapter 5). Conflicting narratives concerning restrictions and accessibility to the sacred Funjwa forest have since emerged. Some participants, i.e., the FG participants and the key-informant participants, stated that although the location of the burial sites was not disclosed, certain areas of the forest are off-limits, whilst other parts of the forest could be used. Others claimed that no one was allowed to use the forest, whilst some participants felt that the community was and still is allowed to use the forest. Whereas others felt that the SF could not be used because it is a sanctified space. The only well-known rule that was not contradicted was explained by Mr Thwala, whose homestead is located closest to the forest and serves as a boundary beyond which no one is allowed to build.

In contrast, in Mazizini, only members of the royal family are allowed to enter the SF. Before entering, they seek permission from or notify the *Nkosi* and his council. Access to the Ndlankomo mountain by the general members of the community are not allowed. The mountain is considered sacred because of the *amaKhosi* burial grounds located on it. Access to all the surrounding indigenous forest patches on the Ndlankomo mountain (which is inclusive of the 'Ndlankomo' forest surveyed) is also restricted. The restricted access helps to maintain the secrecy of the site. The elderly participants explained that locals are prohibited from entering indigenous forest patches on the Ndlankomo mountain because "you can't know why I am not going into that one [i.e., one of the indigenous forest patches]. It's a secret for amaZizi", (*Nduna* Miya). This is to ensure that locals do not become aware of which specific forest is the *Hlathi lama Khosi*, but this has led to discrepancies in narratives surrounding access. The *Nduna* and the *Nkosi* held different views on whether locals needed to seek permission from the TA when using the indigenous forests on Ndlankomo. According to the *Nduna*, locals should seek permission from the TA whenever they want to use the forest, while the *Nkosi* clarified that permission is only sought from the TA when obtaining funeral wood which is harvested from forests except the *Hlathi lama Khosi*. The *Nkosi* substantiated his statement by saying that it is important to seek permission for funeral wood because it is compulsory to inform the *Nkosi* when someone has passed on in the community. This also helps to keep the *Nkosi* updated about forest use.

Similarly, the FG participants stated that prophets, *izinyanga* and *isangoma*, are permitted to enter into indigenous forest patches on *uBudlankomo* to pray and harvest their *muthi* without the need to seek permission from the TA. This does not include being able to access the *Hlathi lama Khosi*. Some FG participants conferred this statement by stating that it is permissible to use indigenous forest patches on Ndlankomo, apart from what they believe to be the *Hlathi lama Khosi*. In contrast, the ward councillor

stated that locals are meant to seek permission from the *Nduna* before entering indigenous forest patches on the Ndlankomo mountain. He added that forest users wanting to use the forest for prayer are also required to seek permission from the *Nkosi*, but these practices are not necessarily carried out. The TA plays the leading role in managing the forest in conjunction with the community through user protocols. With regard to the user protocols, some of the FG participants stated that locals, including themselves, did not use the indigenous forests on Ndlankomo. This was out of fear that they may accidentally enter the *Hlathi lama Khosi*. Yet the findings suggest that locals were aware of the location of the SF because of the restrictions surrounding the Ndlankomo mountain- "there are forests like that [SFs], that are forbidden...people know [which is one it is], they tell each other", (Mr Mtolo). This contradicts what the *Nkosi* and *Nduna* Miya believe namely that locals do not have a clue about which is the *Hlathi lama Khosi*.

The FG participants stated that the Ndlankomo forest, although never proclaimed as a reserve, was protected by Ezemvelo KZN Wildlife forest guards. The guards patrol the forest and utilise watch towers to ensure the forest remains undisturbed. Some of the FG participants also stated that in the past there were times when the *Nduna* would inform the community to avoid using the Ndlankomo forest and to use another forest patch but such restrictions were no longer put in place. Others in the FG explained that *iziNduna* are meant to ensure that the orders of the *Nkosi* are followed. Like in Mabasa, the *Nduna* in Mazizini, claimed responsibility for overseeing the *Nkosi's* land. He explained that he had been chosen by the *Nkosi* to do so. He considered this as an honour. When he sees something wrong, he is required to rectify the situation. The FG participants confirmed such sentiment by stating that the *iziNduna* represent the areas of the community they are from and have 'help men' to oversee that community members abide. In addition, the FG participants noted that the responsibility of the *iziNduna* is a shared community responsibility. There are also 'spies' in the community who inform the *Nduna* if a community member is caught transgressing. Transgressors may be required to pay fines, e.g., either in the form of giving a goat/s or a cow/s or the value of the livestock in cash to the TA. Generally, the transgressor would only be fined unless warnings given to the culprit by the *Nduna* are not heeded or depending on the severity of the committed crime. If the matter is beyond the *Nduna's* power, the *Nduna* would call a meeting to have all the *iziNduna* present to address the issue in which the culprit is required to appear in court. The culprit is addressed by the traditional council which may or may not include the *Nkosi* depending on the seriousness of the crime. In contrast to Mazizini, users of the Funjwa forest do not face any acts of punishment issued by the TA, except for punishments imposed by the ancestors. Governance undertaken by the ancestors serves to curb destructive and unsustainable use in the Funjwa forest.

3.3.2.2. Forest customs, taboos, spiritual governance, and customary secrecy

Regardless of the formal regulations that are implemented by the TA concerning the sacred Funjwa forest, locals are expected to respect the site as emphasised by their previous *Nkosi*, *Nkosi* Bhukwane. Veneration for the SF is mandatory because of the presence of burial sites of the *amaKhosi* known as

ifipha. Forest customs exist and apply to all local and outside users. For example, many of the FG participants, including some of the key-informants, explained that a user or visitor should kneel, pray, and announce themselves to the ancestors. Forest users seek permission from their ancestors by providing a reason for their visit before entering the forest. Failure to do so would result in returning empty-handed or getting lost in the forest. The *sangoma* (a key-informant) related that;

my father-in-law and other men from the community would seek permission and request for guidance from the ancestors before entering the forest, for hunting, to allow the ancestors to watch over them. If this was not done, the hunters would return empty-handed.

As a result, she always practised this custom to not only seek permission but to also be guided by the ancestors. However, many no longer follow this custom as confirmed by the FG participants who stated that only a minority pray before entering the forest because of the influences of Christianity, modernisation, education, etc. (Chapter 4). There are also other forest customs that have to be followed. For example, in the forest, users are required to avoid making a noise, being vulgar, being destructive and saying "ouch" when pricked by a thorn. Forest users should also avoid eating fruits from in and around the sacred area. Additionally, it is customary for a user to give thanks to the ancestors after finishing their work in the forest.

Forest users who are transgressors (destructive, unsustainable, or disrespectful in the Funjwa forest) no longer face any sanctions from the TA. However, the ancestors are still believed to play an integral role in safeguarding the forest. The councillor explained that "[...] the ancestors play a key role in its management". This sentiment was confirmed by all three key informants interviewed in Mabasa who acknowledged the ancestors' role in safeguarding and managing the Funjwa forest. Similarly, the FG participants related that some forest users either see apparitions or experience an intuitive feeling when they are in the forest. This occurs when the ancestors are making themselves "known" to the user. Mr Njokweni added that forest users would sometimes hear the sound of an *egovu*, i.e., a tool for grinding grain, being used and the voices of people "...as if there were homesteads in the forest". It is at this time one should "...pray and ask for forgiveness, so they [the ancestors] can unveil [make clear your path] because they are the owners [of the forest]". Forest users even face the risk of being "taken". It is believed that the ancestors may capture a user for a brief period based on their actions. The elderly participants felt that locals respected and feared the forest because of the risk of getting lost or disorientated by the forest "owners". A local *sangoma* stated that forest users still generally avoid using the sacred area of the forest out of fear of getting lost and becoming disorientated. Mr Thwala elaborated on this phenomenon: The "transgressor" would only realise how long he was lost when speaking with his family saying, "I have just come out" and they would say, "You have been there for three days and he/she would be shocked". When the user is able to return to their family, they may be disorientated and would require a ritual to be performed by either an *inyanga* or *sangoma*. Once "cleansed" the user is able to relate what they experienced, i.e., who they saw, what they were told and what they felt.

In some instances, even if a user sought permission and announced themselves, they may still become lost inside the forest if they displayed acts of ingratitude or disrespect. For example, if a wild fruit is tasted and found to be unpleasant, the user should not complain or throw the fruit away. It is further believed that the companions of such a transgressor will not be able to find them. The transgressor might call out to their companions and believe that they are responding or that they are close by and vice versa, but this is not the case. These incidents are believed to minimise negligent behaviour or practices when harvesting, using or extracting resources from the forest. However, people who have experienced this would not feel fear or hunger. Instead, the transgressor/s would experience having visions of peoples' "homesteads" with chickens or people making fire at a homestead. Mr Thwala explained that the spirits have their way of "punishing" forest users who are disrespectful, but such occurrences are no longer prominent within the community. As such, the potency of the ancestral presence in guarding the forest has reduced over the years which has undermined the forest use customs (Chapters 4 and 5). Mrs Ntuli pointed out that not all forests have such customs attributed to them or that they need to be respected in such a manner.

On the other hand, given the restricted access to the sacred amaZizi forest by non-royal community members, forest customs were minimal in Mazizini. Customs only applied to the royal family members as they were permitted entry to the SF to perform the *amaKhosi* burials and rituals for the ancestors (*asebanguqa*). These customs ensured veneration of the ancestors and the rituals served to appease the ancestors to ensure the well-being of the community. Consequently, the royal family has a direct connection to the ancestors of the SF which is in connection with the reverence of the site and the rituals upheld. The manner of these interactions is significant because the community is impacted based on the outcomes of these practices by the royal family.

Both communities revealed that the burial sites are considered "guarded secrets" and kept confidential according to traditional practices to protect them from being desecrated or used for witchcraft. Consequently, the FG and elderly participants as well as key informants who were not from the royal family, in both study sites revealed that they had never been to the burial sites. The extent of customary secrecy and ancestral significance was highlighted in Mazizini concerning the belief that the remains of the *amaKhosi* buried in the forest will never be found. The reality of this belief held by the royal family and community is evident in the discovery of the remains of the late "Nkosi" Vuna. The remains of Vuna, a regent, in Royal Natal National Park, are believed to have been discovered by tourists whilst exploring the forest. The discovery of his remains meant that the ancestors did not accept him as a rightful heir because he was a regent (*ibambela bu Khosi/Ibamba bu khosi*- holding onto Kingship for the rightful heir). *iBambela bu Khosi/Ibamba bu khos* is associated with the refusal of a regent to step down from the throne. Likewise, Vuna refused to step down when the rightful heir was ready because he believed that he should be the *Nkosi*. The elderly participants highlighted the belief surrounding the concealment of *amaKhosi* burials by sharing that other *amaKhosi* in the community were not 'found' because they were true *amaKhosi*. The *Nduna* shared that if Vuna had been a true *Nkosi*, his burial site

would have never been found. However, it was established that most of the community was not aware of "Nkosi" Vuna's burial in Royal Natal National Park. "I never knew because that was a secret because it was not supposed to be known", (Mrs Sibeko). Moreover, only the royal family had access to the site.

The extent of secrecy concerning the SF was much more evident in Mazizini given the stronger restrictions. For example, the initial uncertainty about the *Hlathi lama Khosi* was due to the site being considered a "top secret" and taboo to be spoken about. Consequently, the initial consensus was that the existence of a SF and its location was unknown. When the elderly participants were questioned about the SF, they claimed to be ignorant. The FG participants also appeared hesitant and uncertain about revealing the presence of the SF. This was evident when participants explained about the royal family burial protocols, of which community members were only informed about the morning after the burial. Details surrounding the importance of the SF are usually not divulged, especially to outsiders. However, once trust was gained with the researcher and the participants understood the rationale behind the research, it was discovered that SF is well-known amongst the locals. The participants later disclosed that there is a culturally important forest known as the *Hlathi lama Khosi* on the sacred Ndlankomo mountain, containing prestigious burial sites. Participants also shared information about which forest on the Ndlankomo mountain should be avoided to prevent outsiders from entering the sacred site. However, given the sensitivity and confidentiality surrounding the site, the location has not been disclosed in this thesis for ethical reasons.

The participants were questioned about why the amaZizi locals refer to the sacred site as a "secret" despite its well-known status in the community. The participants responded by either saying that they did not know why, that it was simply their tradition or that such a response was traditionally shared when questioned about the SF. However, the real reason for their reluctance to discuss the SF was due to matters concerning the royal family being taboo to be discussed by ordinary locals.

I must not discuss Miya's family matters since I am not one. I am not royalty...and must be discussed by those who belong there (Mrs Sibeko).

Similarly, this understanding was shared by the Mabasa community, particularly amongst the elderly participants. It was also discovered, in both communities, that one cannot directly ask or talk about the SF. This forms part of the respect and protection of such sites. As such I and my translator had to tread sensitively, letting the participants know that permission had been granted by the *Nkosi* and his council to conduct the study on the SF. The dialogue below exemplifies the sensitivity in enquiring about the sacred site, and displays the way in which veneration is observed when discussing the SF:

(Smangele: Translator) Ohh she [the researcher] wants to know the name of the forest where 'they' [the *amaKhosi*] are 'placed' [buried]...and where is it [the *Hlathi lama Khosi*]?

(Nduna Miya) No...I can't...I can't tell you about that because that is a history for amaZizi,...its a secret for amaZizi.

Unlike Mabasa, the disclosure of the location of the SF is considered taboo in Mazizini. The *Nduna* provided a vague account of the location of the burial site without disclosing its actual location:

“You see in the history of the maZizi my child, *budlankomo* [the mountain] here...*Nkosi* was sowed (*tshala*), do you know what sowing is? ... Yes, to bury. There is a place where they buried the *amaKhosi*, there is a forest there at Miya, where they ‘sowed’ *amaKhosi* in the forest on the mountain.”

The FG participants also explained that stories and myths have been shared with them to persuade and encourage people to be respectful. For example, people were told to avoid walking over graves or else their feet would peel or become infected. Participants explained that these "African" or "Zulu" myths were intended to instil fear to aid in the protection of the site.

3.4. Discussion

3.4.1. The historical background

Both study sites do not feature prominently in the South African political history. The *abaKwaMabasa* and the *amaZizi* communities were greatly affected by what was happening in the broader region. The *amaZizi* community were considered 'peaceful people', but faced conflict with their neighbouring communities, the *amaHlubi* and *amaNgwane* (Pearse, 1989; Mazibuko, 2011). This conflict affected the *amaZizi* who were forced to seek a place of refuge and settled in the Drakensberg. The *amaZizi* were forced to live alongside the San from whom they adopted several cultural practices. The *Mabasa* community, previously known as the *Manzi* or *Qwabe* of *abaKwaMalimbana*, remained unaffected by King Shaka's desire for expansion and consequent military action (Bryant, 1929). Instead, *Funjwa* shaped the history of *Malimbana*, today known as *KwaMabaso* in reference to him. *Funjwa*'s legacy resulted in the establishment of the SF, but due to confidential internal royal family politics the *Emzinyeni* SF was established years later. The establishment of the *Emzinyeni* site has negatively affected the meaning and associations attributed to the *Funjwa* SF (Chapter 4). Historical events significantly impact the sacredness such sites may hold. However, the creation of the sacred *Emzinyeni* forest could also be considered positively for the mere fact of having another sacred site within the area.

3.4.2. Sacred forest significance

Sacred sites are holy, consecrated or confer their sacredness, from some form of spiritual significance embedded in a belief system (Verschuuren *et al.*, 2010). As such SNS have been an integral part of many African traditional societies for centuries (Agbaeze *et al.*, 2013). These sites are created by humans and their spiritual interaction with the landscape (Wild *et al.*, 2010) and with their histories and sacredness varying across sites. In the case of the *Funjwa* SF and the *Ndlankomo* mountain and associated SF, their sacred significance is derived from the *amaKhosi* burial ground located within each. These sacred sites also display spiritual significance associated with ancestral reverence embedded in the Zulu belief system. The sacred *Funjwa* forest links to the Bantu history pertaining to the *Ndwandwe-Zulu* war and

the importance and reverence of ancestors. The Funjwa forest's sacredness is attributed to the ancestral burial of *Nkosi* Funjwa. Mabasa did not exist before he claimed kingship and proclaimed the land as Mabasa. The name Mabasa signifies the importance of Funjwa pertaining to his legacy and his contribution to the community. Like Verschuuren *et al.* (2010), the Funjwa SF confers its sacredness from the connections to ancestral burial grounds and culturally significant histories. The findings also revealed that the area closest to the burial sites was most sacred and is supposedly restricted in terms of access and use, i.e., the site is protected by ancestors due to the presence of *amaKhosi* burials. Therefore, SFs vary in their status, size and cultural significance (Ormsby and Edelman, 2010). The entire Funjwa forest is not considered sacred, only a particular area within the forest is.

Similar to Mabasa, the sacredness of the Mazizini site is attributed to *amaKhosi* burials. Ancestors of *amaKhosi* are considered to be powerful and most important ancestors of the community. This belief is similar to the ones shared by the Shona, from Zimbabwe, who believe that the former *amaKhosi* are the most powerful ancestors and are referred to as *mhondoro* (Byers *et al.*, 2001). Unlike in Mabasa, no prominence is placed on a particular *Nkosi* in reference to the *Hlathi lama Khosi*. This may be because the amaZizi were already established as a kingdom before their settlement in the Drakensberg. Given the political turbulence endured by the local amaZizi community and the establishment of protected areas in their community (Chapter 4), the practice of *amaKhosi* burials, including its location has been affected in Mazizini. For example, *Nkosi* Magangane who is remembered for ensuring the community's final settlement in the Drakensberg after years of seeking refuge in various locations, is buried in the National Park. Whilst other *amaKhosi* had to be buried in the *Hlathi lama Khosi* (the amaZizi SF) because of the restrictions placed on the National Park.

3.4.3. Customary laws, taboos and customs

The identification and protection of SFs are influenced by their endogenous cultural rules of governance which vary amongst regions (Rath *et al.*, 2020). Sacred forests are managed, protected and conserved through a combination of customary laws, beliefs, customs and taboos that are a part of many cultures across the world (Khan *et al.*, 2008; Verschuuren, 2010; Agbaeze *et al.*, 2013; Sinthumule, 2022). In Mabasa and Mazizini, customary laws are defined and enforced by the TA through the traditional council and the *Nkosi*. These laws include practices, rules and regulations regarding the SF and are not formally written down but are based on customs, traditions and beliefs that have been passed down orally through generations. Hence, most sacred sites are often not formally recognised or owned, making their existence and effectiveness as conservancies dependent on informal institutions which define and govern human behaviour and the people that protect them (Allendorf *et al.*, 2014). For example, in Mazizini, if anyone is guilty of contravening the laws, they are made to pay a fine. In Mazizini, it is customary law and considered taboo for locals to enter indigenous forest patches along the Ndankomo mountain as well as the *Hlathi lama Khosi* to avoid disturbing their ancestors (Sinthumule, 2022).

Varying levels of restrictions and governance exist between the SFs in Mazizini and Mabasa, which impacts how local communities access and use forest resources. The *Hlathi lama Khosi* in Mazizini is subject to access restrictions and customary secrecy. Because of the practice of customary secrecy all other indigenous forest patches on the Nhlankomo forest upon which the *Hlathi lama Khosi* is situated are also restricted to the locals. This restriction serves as a precautionary measure to ensure the sanctity of the SF. Ordinary community members are not permitted to collect forest products or conduct rituals in the *Hlathi lama Khosi*. Similar findings have been found in the villages of *Balogun* and *Ososun* villages in Ogun state, Nigeria (Babalola *et al.*, 2014). There are many SNS that only permit important ceremonies and religious rituals (Nganso *et al.*, 2012). For example, only the selected royal family members are permitted to conduct the *amaKhosi* burials and the *asebagaqa* ritual (to appease the ancestors) in the *Hlathi lama Khosi* in Mazizini. In Mabasa, the key informant interviews indicated that currently, there are no restrictions on the Funjwa forest. Because there are fewer indigenous forest patches compared to Mazizini, locals in Mabasa are permitted to harvest for their needs and livelihoods with permission sought from the TA. The locals in Mabasa depend heavily on the forest for their sustenance and livelihoods. Though permission to harvest forest resources traditionally had to be sought from Traditional Authorities (TA), this practice is no longer followed. Therefore, the endogenous rules of governance and the level of sacredness or ancestral significance of these sites differ across SFs, and are influenced by factors such as “resource extraction and human activities”, the physical landscape and forest availability (Rath *et al.*, 2020: 1).

The elderly in Mabasa shared conflicting views about whether the SF is strictly off-limits. In some cases, the entire SF can be used or avoided to prevent desecration of the sacred or burial site, whilst others suggested that certain areas of the forest may still be used. Others felt that use is permitted except in areas surrounding the burial sites. Similar findings have been recorded whereby community members in Akwa Ibom State, Nigeria, “are not allowed to extract timber products or cultivate crops within the sacred areas” (Agbaeze *et al.*, 2013: 701). These discrepancies expressed around accessibility is a result of locals not being privy to information about the royal family and due to “respected confidentiality”. The discrepancies in accessibility to the SFs is also attributed to local and national laws that have historically undermined traditional governance and cultural institutions, a consequence of South Africa's long imperial history. These dynamics are unpacked in greater detail in Chapter 4. Regardless of the reasons for these discrepancies, various narratives about the SF have been shared over the years, creating confusion surrounding access and use. As a consequence of the revival of traditions in the community, access to and use of the most sacred area of the Funjwa forest has been more recently discouraged by the TA. There have been no stringent rules or laws put in place by the TA to implement such given the reduction in their authority (Chapter 4). Similarly, the SFs in Makeni, Sierra Leone, are still being used for spiritual and cultural purposes such as initiations but the management of the SF is not maintained by the TA despite their presence (Martin *et al.*, 2011). Similar to Mabasa, there are differing accounts about how the other indigenous forests on the sacred Ndlankomo mountain, where the SF is located, are used.

Some narratives suggest that forest use is allowed, but only for gathering wood for funerals. Others say that use is permitted, except for collecting fuel wood, while some claim that the forests are completely off-limits for any use. These discrepancies appear to be a consequence of the community not being “formally” told about which forest patch is the *Hlathi lama Khosi*, i.e., which forest can or cannot be used. Undaharta and Wee (2020) shared that clear ownership, such as the transfer of forest ownership to the local community, can address inconsistencies in access and conservation issues. They explained that this is possible via legal recognition of community ownership and the recognition of locals as custodians, of which encourages active management by empowering the community and promoting cultural values such as the *Tri Hita Karana* philosophy. Despite the discrepancies, it was noted that traditional healers in both sites were “permitted” to harvest medicines in the forest because it is considered important for healing people physically and spiritually. Traditional healers in both communities are held in high esteem for their ability to connect with ancestors. Nonetheless, permission to enter the Ndlankomo mountain and the indigenous forest patches on this mountain is required from the TA as the leading custodian, but this regulation has largely been ignored. The special allowance given to traditional healers resonates with the limited entry to the sacred groves in Sierra Leone which is based on one’s initiation status, gender or society from which the user is from to maintain controlled use and selective access to honour the sacred space (Martin *et al.*, 2011).

In some SNS an offering is required to be made towards the spirits or gods when accessing and using the site (van Andel, 2012). However, within both the Funjwa forest and the *Hlathi lama Khosi* in Mazizini, no such offerings are made. Forest users are expected to follow certain customs, e.g., to pray, request guidance and seek permission from the ancestors upon entry. For example, the royal family’s access to the sacred amaZizi forest is also governed and expected of them to follow certain customs. These customs relate to codes of conduct before entering and whilst using the forest based on respect, gratitude and caution (mindful of the spiritual inhabitants of the forest). These customs are established by the TA, informed by ancestral beliefs and ensured through spiritual governance. Customs are derived from people's cultures and are informal practices, rather than laws, that outline human behaviour (Babalola *et al.*, 2014). Even though the sacredness and associated customary laws of the two sites vary, prayer before entry into these forests is considered culturally obligatory and as a sign of respect for these special sites. For example, forest users in Mabasa are expected to follow customs, even though taboos and customary laws as well as consequences faced by transgressors are flexible, the ancestors play their role, i.e., in protecting and managing the site (Anwana *et al.*, 2010), if these customs are not heeded. Both study sites share the Zulu traditional culture in which ancestors play an integral role in safeguarding the SF. However, in Mabasa, it has become socially acceptable for anyone to enter the forest without following the traditional protocols of seeking permission from the ancestors. This reflects that there is a deterioration or dissociation in biocultural relationships with respect to the forest (Chapter 4).

The belief that deities and ancestral spirits protect the well-being of the local people has been well documented. For example, various studies have demonstrated that ancestral spirits punish wrongdoers

when acts of transgression are committed by users of the forest (Byers *et al.*, 2001; Coggins and Hutchinson, 2006; Anwana *et al.*, 2010; Doffana, 2018; Sinthumule and Mashau, 2020; Sharma and Kumar, 2021). Therefore, the violation of taboos or customs can lead to retribution from ancestral spirits (Byers *et al.*, 2001; Sinthumule, 2022). However, unlike in other examples in which sacred sites are governed through spiritual governance with harsh or extreme acts of punishments (Kamga-Kamdem, 2010) like death (Anwana *et al.*, 2010), female barrenness (Boafo *et al.*, 2016), illness or a series of misfortunes (Barre *et al.*, 2019), blindness, deafness and disappearance (Sinthumule and Mashau, 2020), no harsh acts of punishments were reported for the Funjwa forest. Likewise, Kamga-Kamdem (2010) also found leeway when taboos are ignored and punishments by ancestors are not as severe. This has resulted in a nonchalant attitude amongst some forest users and has put into question the role of the spiritual realm in punishing wrongdoers (Byers *et al.*, 2001; Sinthumule, 2022). For instance, reports of ancestors protecting the Funjwa site are rarely heard of, even as forest users increasingly exploit the forest for *muthi* (Chapter 6). Like Byers *et al.* (2001) and Sinthumule (2022), the reduced powers of the ancestors as owners of the Funjwa forest in punishing wrongdoers may be attributed to infrequent ceremonies and rituals. It is these rituals and ceremonies that maintain good relationships with the ancestors and keep the spirits alive to ensure that they act as managers or protectors of their territory (Sinthumule, 2022). Consequently, it is believed that the custodians of the site and community do not have the power to ensure order and harmony without the blessings and guidance from the ancestors. Power, governance and management of the SF is a responsibility of the leading custodians that is shared between the royal family, including the traditional council, and the ancestors. Spiritual governance in the Funjwa forest influences forest users to recognise the sacredness of the forest in subtle and indirect ways. This awareness is believed to stem from an intuitive feeling or “visions” experienced by forest users, attributed to the ancestors protecting the forest. As such these sacred sites serve as a medium between humans and the spiritual world, associated with socio-cultural heritage, and ethnic and religious beliefs (Sharma and Kumar, 2021).

In this study, customary secrecy is defined as the tradition of concealing specific cultural practices, narratives or events within the local, traditional communities or within a particular group in the community. This involves the deliberate withholding of knowledge, rituals, or practices, in part or whole, by the respective community, family, or leading custodians, which shapes traditional customs, norms, and taboos. An example of this, is the exclusive access granted to the royal family to visit the discovery site of “*Nkosi*” Vuna and their entry into the *Hlathi lama Khosi*, highlighting the significance of customary secrecy amongst the amaZizi. While such secrecy and the myths surrounding customs and taboos have historically protected the SF, it has also contributed to ignorance about the significance of the SF or aspects of the local culture within the community. For example, the royal family's exclusive access to Vuna's burial site has led to a lack of awareness among ordinary community members, potentially diminishing the significance or the perceived value of the site. Nevertheless, the discovery of *Nkosi* Vuna's burial site highlights the beliefs in ancestral protection of sacred sites and reveals the

non-acceptance of *ibambel bu khosi* (a regent) who refuses to relinquish power. These beliefs highlight the role of ancestors as intermediaries, particularly in maintaining the royal bloodline to the physical world.

3.5. Conclusion

This chapter illustrated how the broader historical context of KwaZulu-Natal has influenced the SFs and the local cultural histories, highlighting the connections between the cultural, spiritual and ecological significance of the SF with local historical events or traditions. In Mabasa, the sacredness of the forest was a consequence of the connections between the Ndwandwe-Zulu war, the revered *Nkosi* Funjwa and his burial in the forest. Whereas, the *Hlathi lama Khosi* in Mazizini is associated with the *amaKhosi* burials in the Drakensberg mountain on which they originally settled due to years of the *Imfecane* wars. Therefore, it can be established that the historical events in the region influenced which areas are sacred. Both sites sacredness have also been further impacted by their shared ethnicity, beliefs and traditions. In both communities, regardless of all the sacred manifestations associated with the SFs, the sacredness is primarily attributed to ancestral connections to the *amaKhosi* burials.

Although the views presented in this chapter regarding traditional regulations displayed differences in the narratives between the two sites (which are further unpacked in Chapter 4), these sites are governed based on traditional and ancestral forms of governance. Hence, the sites are governed by traditional regulations or customary laws, as well as forest customs and taboos passed down through generations. The rules vary from strict laws and regulations in Mazizini to greater flexibility of practices permitted in Mabasa reflecting the community's dependence on the forest, and differences in the physical availability of forests. Moreover, the *Hlathi lama Khosi* is characterised by customary secrecy and is completely restricted from the general community to preserve its secrecy, while the Funjwa forest, like other sacred sites, despite its sacred status, is accessible to community use (Kamga-Kamdem, 2010). Therefore, the use and function of the forest also define the SF, of which the governance surrounding the site influences cultural activities and resource use (Nganso *et al.*, 2012; Rath *et al.*, 2020). In this way, it can be understood that different sacred sites have different levels of sacredness attributed to them in relation to their use (Kamga-Kamdem, 2010).

Both sites have an underlying principle of respect and gratitude in connection to the ancestors who are believed to be the guardians of the forests. The chapter also highlights the critical role that spiritual governance plays in maintaining the sacredness of these forests. The presence of ancestors, like in many other forests, serve as protectors and guides forest users, highlighting the significance of the spiritual realm's role in shaping forest user behaviour. In Mabasa, the connection between human action (based on forest customs and taboos) and spiritual intervention, determines the consequences of retribution from the ancestors. As such, the influence of the spiritual entities on user behaviour reflects the conservation ethic it upholds (Arora, 2006; Verschuren, 2010; Mahaseth *et al.*, 2023). Sacred forests are, therefore, not only considered a part of the physical landscape but also the cultural landscape they

represent as living embodiments of local spiritual, and cultural heritage and practices. These SFs serve as mediums between the living and the spiritual realm. The rules of the land and traditions are supposedly upheld by the *Nkosi* and his council, which plays a pivotal role in protecting and managing the site. Additionally, this contributes to keeping "alive" the ancestors of the forest through veneration. Therefore, based on the customary laws, customs and taboos created and enforced by the TAs, custodian communities and ancestral spirits, the SFs have been protected and managed for generations. Understanding the role of SNS in conservation has more recently seen a rekindling of interest in the spiritual and sacred values as a basis for biological conservation (Oviedo *et al.*, 2007). As such it is crucial to recognise and respect the intricate ties between traditions and beliefs, which have served to preserve such sites. Sacred forests together with their social and religious or spiritual origins play an important role in conservation and local livelihoods (Wadley and Colfer, 2004; Gavin *et al.*, 2015). Unfortunately, these ties have been undermined over the years by the socio-political context of South Africa, which has traversed through colonialism, apartheid and democracy, analysed in the next chapter.

Chapter 4: The socio-political impacts on biocultural associations attributed to sacred forests

4.1. Introduction

Indigenous communities are inextricably linked with nature (Okano and Matsuda, 2013). These linkages are shaped by the history shared with their land (Bogaert *et al.*, 2014). As a result, conservation outcomes are shaped by the social-political histories of a place and are context-specific (Gavin *et al.*, 2015). This chapter aims to understand how South Africa's socio-political context has impacted the biocultural associations. The chapter attempts to portray the impacts that key historical events have had on meanings and associations attributed to SFs.

In this chapter, the reader is taken through time across the colonial, apartheid and democratic periods. Each of these periods have contributed to profound transformations. The colonial period was marked by warfare over land and resources and ultimately resulted in European settlements, political domination, and violent dispossession (Kohn and Reddy, 2006). Customary rights of indigenous peoples were often denied (Chatty and Colchester, 2002). The colonial period is also associated with the introduction of Western institutionalisation of Christianity through missionaries that contributed to the erosion of traditional values (Mallarach and Papayannis, 2006). The subsequent apartheid regime resulted in legislated racial and cultural segregation in South Africa in 1948. The government used the TAs to legitimise, facilitate and ensure their sociopolitical agenda through the institutionalisation of traditional leadership (Baloyi, 2019). Traditional leaders often served as a critical link between the people and the government, acting as the eyes and ears of the government to ensure government control and subservience (Baloyi, 2019). In contrast, democracy sought to make a fundamental difference in key aspects of life within local communities, particularly for people of colour who had historically been denied political and economic rights. This period also involved people-centred "development planning

at the local level" and "in transforming the unequal power relations" in bureaucracies in the post-apartheid state (Williams, 2006: 200). This chapter illustrates the various drivers of change within each of these periods and the consequent outcomes that threatened or altered human-nature interactions, with particular reference to traditional governance and religiocultural beliefs within the two study sites.

As the chapter analyses the different periods, the changing context and the complexities and nuances of the drivers of change at the national and local levels are also navigated. The attention given to specific time periods allowed for analysis of how changes impacted the preservation and transmission of traditional practices, values, beliefs, and knowledge. The chapter also illustrates how the once resilient and enduring spirits of the local people, rooted in their cultural identity, traditional practices and intergenerational knowledge systems (Chapter 3), have been compromised over time. By understanding how socio-political changes are impeding remaining biocultural associations, the underlying processes driving the changes provide insight into the impacts on the resilience of these biocultural communities. The chapter also illustrates the ripple effects or concurrent and concomitant impacts of each period on traditional governance, sacred forest management and traditional practices. Thus, analysing the drivers of change offers an opportunity to understand how conservation efforts can be implemented to maintain biocultural relations and associations (United Nations General Assembly, 2010).

4.2. Objective, research questions and methods

The objective of the chapter was to understand what socio-political factors have contributed to the biocultural disassociations or fragmentations within each of the study sites, particularly with reference to the ancestral beliefs of the local communities and the leading custodians of the SFs, given South Africa's socio-political context. To achieve this objective the following research questions were answered:

1. How has the socio-political context of colonialism, apartheid, and democracy impacted the biocultural associations such as traditional governance and beliefs associated with the SFs?
2. How have changes in the significance of traditional governance, ancestral beliefs and rituals over time affected the preservation of the SFs?

This chapter uses multiple methods to make sense of the changes and the drivers of change in the Mabasa and Mazizini communities. The primary approach used in this chapter is oral histories (Section 2.3). The narratives reflected upon in this chapter are also supported by the data derived from document analysis (Section 2.4) and collated responses of the FG participants (Section 2.1.4) and key informants (Section 2.2). The findings are clearly attributed to the respective sources, i.e., whether from FG participants, key informants, or oral history participants (also referred to as elderly participants). Where the term "participants" is used more generally, it refers collectively to all individuals involved in the study, including FG participants, elderly participants and key informants.

4.3. Results

4.3.1. A timeline of the drivers of change across three political periods

The timeline (Figure 4.1) outlines three significant political periods within South Africa: the colonial, apartheid and democratic periods. The events within these periods are discussed in relation to their impacts on local governance structures, including (1) the leading custodian (the *Nkosi*) and his council as the traditional authority (TA), (2) the local traditional belief systems and (3) cultural practices.

Era	Mabasa	Year	Year	Mazizini	Era
Colonialism	<i>Nkosi</i> Mzila (in power during the initial transformations in the community set in motion by the missionaries)	1901-1914	unknown- 1913	<i>Nkosi</i> Mnyamane (his end of reign highlights the initial impacts of Colonialism via National Reserve)	Colonialism
	The first visit of the missionaries	1903			
	The missionaries return to Mabasa and establish the church	1908			
	The missionaries new house and their "back-door" medical treatment	1909			
	The establishment of the mission school	1910			
	The establishment of the mission hospital	1914			
	<i>Nkosi</i> Mageckeni	1922-1940	1916	The establishment of Royal Natal National Park	
	The Church of the Holy Ghost	1935			
			1937	The establishment of eBusingatha Primary School	
			1949-1962	Vuna contesting for power and his consequent banishment	
Apartheid	<i>Nkosi</i> Bhukwane	1950-1968	1949-1962	<i>Nkosi</i> Bangane	Apartheid
	The Bantu Authorities Act	1951	1951	The Bantu Authorities Act	
			1953	Concerns about soil erosion by the Government	
			1960s	The implementation of the Betterment Scheme in Mazizini	
			1972	The establishment of Kwa Miya Primary School	
			1974	The establishment of AmaZizi High School	
	The establishment of Zenzeleni Secondary School	1976			
	<i>Nkosi</i> Justice	1980-2010			
	The establishment of the Reserve and its failure	1990			
	The second establishment of the Reserve	1992			
Democracy	The end of the Reserve	1993			Democracy
	The adoption of the Constitution of the Republic of South Africa	1996	1996	The adoption of the Constitution of the Republic of South Africa	
	The abolishment of corporal punishment	1997	1997	The abolishment of corporal punishment	
	The third establishment of the Reserve	2002			
	The end of the Reserve	2003	2009	Department of Cooperative Governance and Traditional affairs (CoGTA)	
	Department of Cooperative Governance and Traditional affairs (CoGTA)	2009	2014	(As acting <i>Nkosi</i>) Njabula Miya	
	<i>Nkosi</i> Khulezwani	2014- Present	2023- Present	<i>Nkosi</i> Njabula Miya	

Figure 4.1. Key drivers of change were identified as undermining biocultural relationships in the Mabasa and Mazizini communities during three political periods.

4.3.2. The colonial period

4.3.2.1. The influence of missionaries on local ancestral beliefs in Mabasa

The introduction of Christianity during colonialism had a transformative effect on the local belief system and way of life in both communities (Figure 4.2). In Mabasa, the arrival of the Keyes family in 1903 marked the beginning of efforts to establish a mission station. This chapter draws on the work of Theron, as documented in *Mseleni Out of the Ditch*, which is based on her direct observations and experiences while living in the community. Theron's (1975) account provides a detailed narrative of the sociocultural, economic and historical contexts of the community, offering both descriptive documentation and reflective analysis.

Her work serves as an important historical source enriching the analysis presented here. Theron (1975) has researched the missionary history of the Mabasa locality, supported by oral histories from elderly participants in this study, which revealed that *Nkosi* Mzila initially granted the missionaries land. It was recorded by Theron (1975), that upon *Nkosi* Mzila learning that the missionary had taken their request for land to the colonial authorities, he rejected giving his approval and refused to grant land to Mr Keyes (the founder of the missionary church). Despite the *Nkosi's* disapproval, the mission station was eventually built in 1908 with permission from the colonial government (Theron, 1975).

The missionary introduced the “word of God”, which resulted in traditionalists in the community accusing the missionaries of instructing community members not to worship their “ancestral spirits any longer but to despise them” (Theron, 1975: 11). Similarly, the elderly participants interviewed as part of this study stated that the local missionary strongly opposed the Zulu belief and ancestral practices, and prohibited ancestor veneration. Churchgoers were no longer allowed to host ceremonies for a deceased family members or loved ones. Historical records showed that some local members of the community were in opposition to the missionary church (Theron, 1975). The *Nkosi* forbid his people from visiting the mission and were threatened with acts of punishment, but were never carried out (Theron, 1975).

Even though the locals were prohibited from going to the mission station, the timeline reflects the various drivers of change that were initiated by the missionary. For example, the increasing acceptance by some of the locals for the benefits it provides, i.e., both spiritual and socio-economic support. Initially, locals sought medical care for their ailments at the missionary’s new house, where Mrs Keyes was a trained nurse, treated community members when they were sick. Later a school was established which further extended the influence of the missionaries. The elderly participants explained that *Nkosi* Mzila was not happy that the missionary opened a school because it affected the way of life in the community. In 1914 the Mseleni hospital was built due to the increasing need for medical care in the community (Figure 4.1). Mrs Nxumalo mentioned that the missionaries forced their Christian beliefs on the locals through the schools, the church and the hospital. For example, indoctrination of learners at the school is evident (Theron, 1975: 40) in the following excerpt:

“What good would learning do you?” enquired Mrs. Keyes

“Oh! Then I shall be clever,” was his rejoinder.

“Wouldn't you like to believe?” was Mrs. Keyes's next question.

...Mrs Keyes explained the whole way of salvation to him.

The locals’ interaction with the missionaries resulted in their increasing acceptance of the church. Mr Lugagu explained that “customs have been outgrown” because parents were indoctrinated through schooling during the colonial period, and that education “...changed the way people developed”. Mrs Nxumalo further explained that the introduction of religion in the area led to some community members

developing and adopting different ideologies. Local norms, customs and traditions became less valuable. Some of the elderly participants shared that they abandoned their parents' beliefs, for example, Mrs Mbuyazi who is a Christian of the Scandinavian Evangelical Church (SEC), stated that her parents prayed to the ancestors, whereas she could not believe in a “dead person that was probably not holy or righteous, and not knowing how the ancestor is faring in their new abode”.

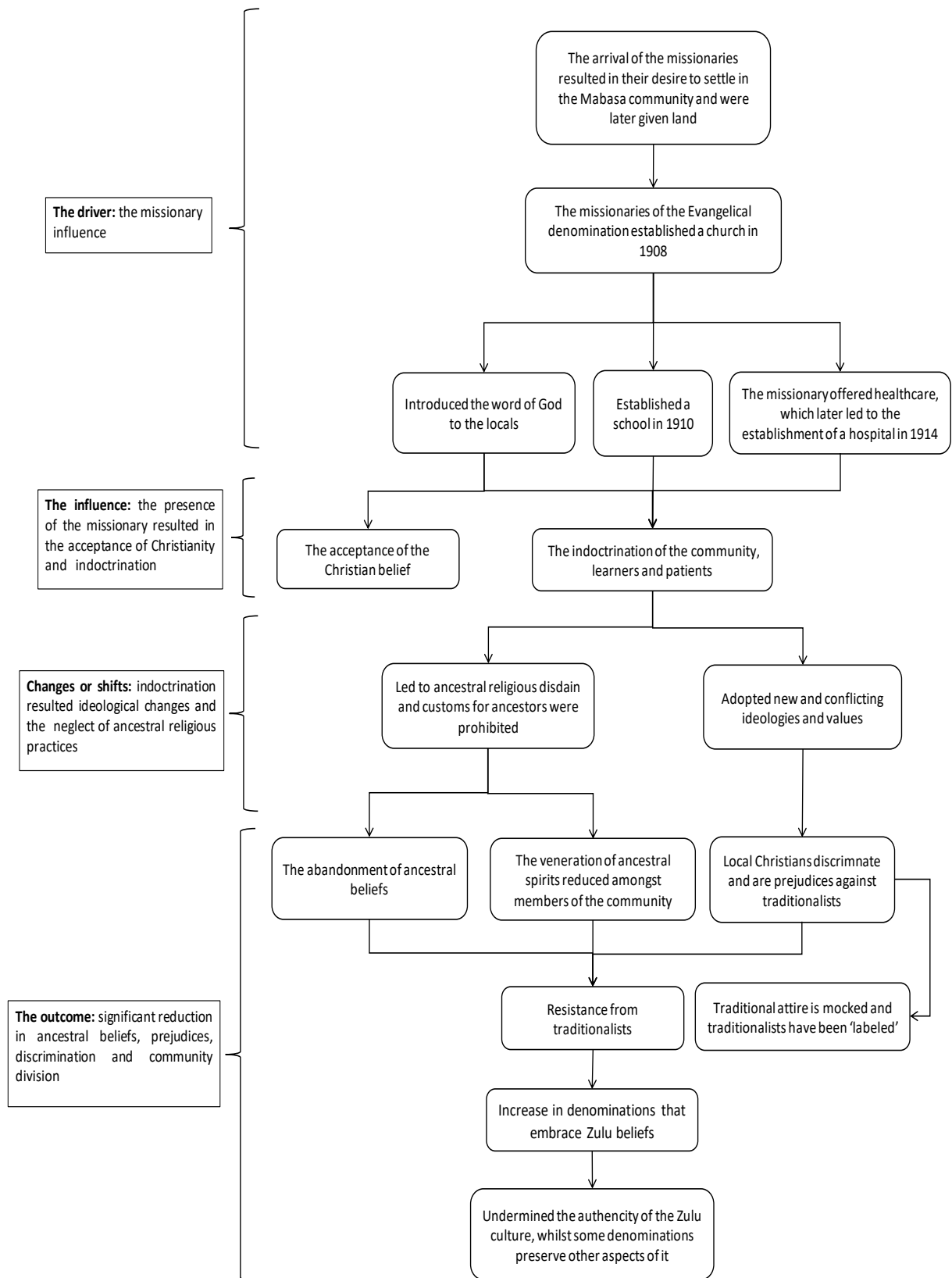


Figure 4.2. Colonial period: the impacts of the missionaries on cultural beliefs, customs and practices in Mabasa.

Acceptance of Christianity led to the adoption of new ideologies. Christians began discriminating

against traditionalists. For example, the traditional attire was 'seen as savage and backwards' by the church. Dancing and singing, referred to as *ingoma*, was also considered 'uncivilised' (Mrs Nxumalo). Consequently, followers of the church began calling traditionalists "*amabhinca*", which means traditionalists, in a disparaging manner. The converted also viewed ancestors "as a lost cause" as "nameless people" (Mrs Nxumalo). Traditionalists began boycotting the mission church which resulted in a rise in the number of other churches and denominations in the area, as some people did not want to abandon their traditions completely. As such, the missionaries paved the way forward for the establishment of different churches, e.g. the African Gospel, the Anglican, Zionist, Nazareth-baptist (Shembe), and Catholic churches, as well as the Church of the Holy Ghost (1917). Mr Zikhali explained that some of these churches permitted certain traditional beliefs or practices, whilst others did not. For example, all the elderly participants, except two, belonged to a particular denomination, of which some denominations discourage ancestral practices, whilst others do not. The African Evangelical Church (AEC) and Scandinavian Evangelical Church (SEC) discouraged ancestral worship. Whilst the Nazareth, Zionist and Holy Ghost churches accept ancestral worship, the Holy Ghost church and the Zionist church insist that blessed water and candles are used when communicating with their ancestors, instead of burning *imphepho* which is the common way used to communicate with one's ancestors.

4.3.2.2. Effects of the National Reserve and the introduction of education on the amaZizi culture

In Mazizini, the effects of Christianity were not as strongly felt. There was no mission station established in the area. Unlike Mabasa, it was found that the missionaries did not have much of an influence on the Mazizini community, because there was no mission located in the community (Bishop Nkabini). The two significant drivers of change felt in the community were (1) the establishment of the nature reserve and (2) the establishment of a local school. The area in which *Nkosi* Mnyamane was buried was later proclaimed as a National Reserve in 1916 (Figure 4.1). The establishment of the reserve resulted in the local community members being excluded from the site. This resulted in the change of the burial sites of the *amaKhosi* as well as where the *Nqina* ceremony took place. Both these practices were relocated to the sacred Ndlankomo mountain in Busingatha (which is one of the five areas in Mazizini) (Figure 4.3). The elders explained that formal education was brought into the community by locals who turned a homestead into a classroom (Figure 4.4). This act was frowned upon by many of the elders and the establishment of the school faced scepticism. Apparently, the logic behind their scepticism was that an ignorant person would not get into trouble. Concerns raised was that formal education would result in adoption of Western values and traditional beliefs and practices would not be valued. Nonetheless, as time progressed education was gradually accepted and the first primary school was established in Mazizini.

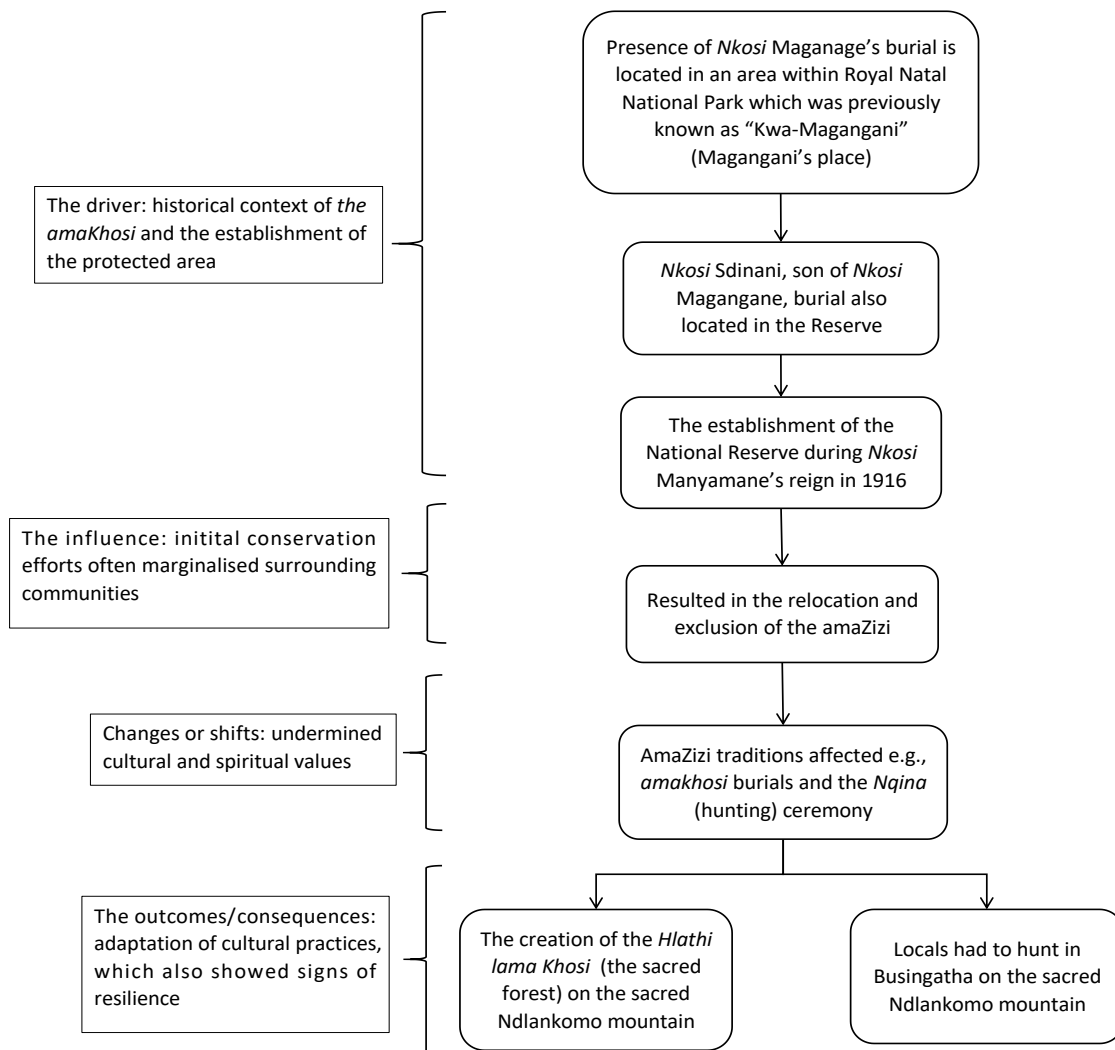


Figure 4.3. Colonial period: the impacts of the establishment of the National Reserve that undermined the cultural practices of the community through the exclusion of the amaZizi.

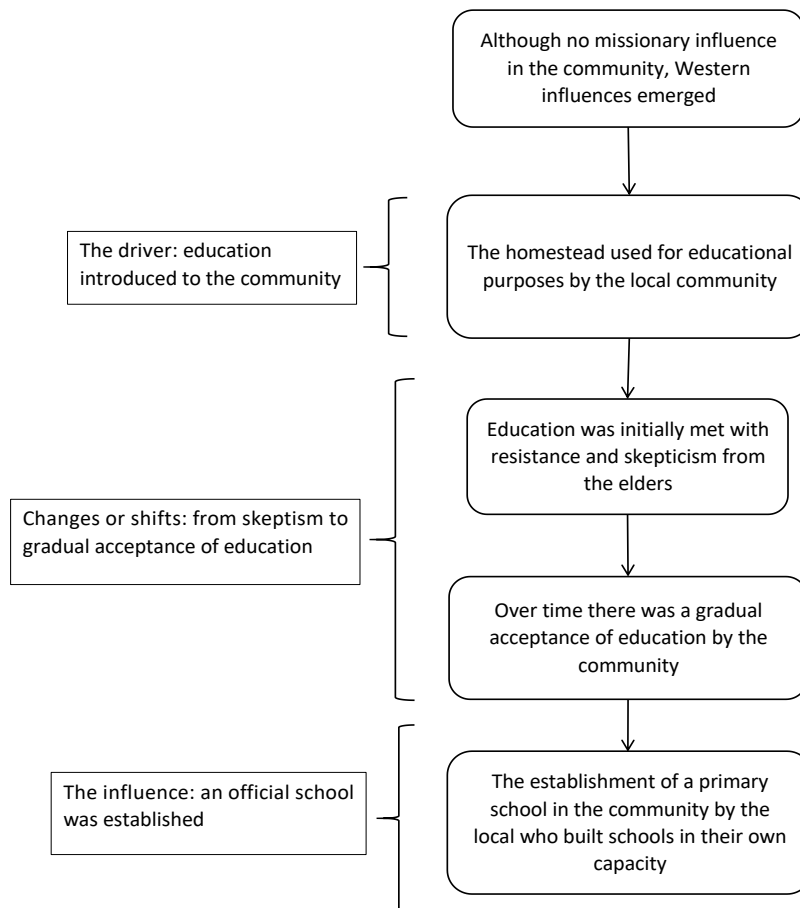


Figure 4.4. Colonial period: the impacts of the introduction of Western education that altered and reduced the cultural heritage of the amaZizi.

4.3.3. The apartheid regime

4.3.3.1. False autonomy of local leaders

The apartheid period extended and reinforced the practices and ideologies established during colonialism, building upon the colonial foundations such as systems of racial hierarchy, land dispossession, and economic exploitation that marginalized the indigenous population. The apartheid government made further inroads to control indigenous communities through discriminatory legislation, further entrenching systemic inequalities and undermining traditional sovereignty (Figure 4.5). In Mabasa, *Nkosi* Bhukwane (Figure 4.2) was acknowledged for his ‘intelligence’ by the apartheid government as per the report written by the Native Commissioner in 1952. However, his intelligence later contributed to a tumultuous relationship between the government and himself. According to the elderly participants who were interviewed, the traditional authority (TA) of Mabasa regulated forest use. Permission had to be obtained from the *Nduna* or the traditional council to harvest in the SF. During *Nkosi* Bhukwane's reign, this regulation changed as a consequence of the apartheid government. Some of the oral history participants claimed that *Nkosi* Bhukwane worked for the apartheid government because the police were brought in to enforce restrictions surrounding the Funjwa forest. This was

evident in the reports to the Native Commissioner in 1952 which states, “he [*Nkosi* Bhukwane] cooperates well with the police and is loyal to the department”. Other elderly participants interviewed felt that *Nkosi* Bhukwane was a well-respected leader and enforced regulations. Anyone who did not abide by traditional laws was arrested, taxed or fined (Figure 4.5). The oral history participants also stated that despite *Nkosi* Bhukwane being educated, he still held firm to local traditions and practices. He emphasised the importance of burials.

Most of the elderly participants were uncertain about what kind of relationships existed between the apartheid government and the local TA, besides stating that the *Nkosi* had to follow the orders given by the apartheid government. Their uncertainty was largely due to the fact that most of the elderly participants were not a part of the traditional council and had not attended traditional court at the time. Nonetheless, Mr Lugagu stated that the apartheid government reduced the power and sovereignty of the TA. For example, information collated during the document analysis such as the Native Commissioner reports showed that *Nkosi* Bhukwane requested to revert to the “old system”, whereby the TA had full autonomy over his people, and all fines and other penalties would be made to the TA rather than the government. *Nkosi* Bhukwane later received threats of removal of his civil and criminal jurisdiction as outlined in the letter to the Native Commissioner office of Pietermaritzburg in 1957. The Chief Native Commissioner’s report states “any reversion to the old system would not be permitted” (file no. 11/1/3/1, 1957). The apartheid government’s response to *Nkosi* Bhukwane’s request aligns with the claims made by the elderly participants, that the apartheid regime was oppressive towards the people and the sovereignty of the TA was undermined by limiting their power and ensuring that the government maintained ultimate control. Mr Njokweni further explained that “if the apartheid government continued [to remain in power], Chieftainship would have been done away with”. Others, however, felt different. For example, Mrs Mbuyazi explained that despite the apartheid government’s efforts, the TA was autonomous as the *Nkosi* retained considerable power, influence, and control over his people. She also made reference to how locals at the time had more respect for the TA and adhering to the *Nkosi*’s instructions. Consequently, she felt that the TA was stronger during the apartheid period because the laws were more stringent as opposed to present times.

Similar consequences were felt in Mazizini. The influence of the apartheid government on the TAs were made possible through the Bantu Authorities Act.² (Figure 4.6). For example, the document analysis, i.e., the Native Commissioner reports, revealed that the government’s initial appointment of “*Nkosi*” Vuna (the son of the *Nkosi*’s second wife) as the new *Nkosi* created tensions within the community. The elderly participants and the *Nduna* as a key-informant, explained that traditionally leadership succession

² The Bantu Authorities Act 68 of 1951 served as a form of cultural segregation whereby customary law was only legally recognised under exceptional circumstances and indigenous community rulers or traditional authorities were subjected to state authority and control (Morudu and Maimela, 2021).

in the community lies with the firstborn son of the *Nkosi's* first wife. As a result, Vuna's appointment by the government contributed to a section of the clan not being happy, which ultimately led to the government ordering the banishment of "*Nkosi*" Vuna. In addition, restrictions around access were upheld by the government (Figure 4.6). *Nduna* Miya also mentioned that the apartheid government informed the Zulu King that traditional *amaKhosi* forest burial practices, i.e., the way the *amaKhosi* were traditionally buried in forested areas, were prohibited. This instruction was given despite there being no law that specifically stated the *amaKhosi* forest burials could no longer take place. He explained that the government informed the Zulu King that *amaKhosi* forest burials were no longer allowed (*Nduna* Miya). Consequently, some elderly participants now believe that the more recent *amaKhosi* were not buried on the mountain in the forested patches, as per the tradition of their forefathers. Only members of the royal family can confirm this. This confirmation was not received from members of the royal family.

4.3.3.2. Discriminatory legislature and the adoption of Western ideologies

The amaZizi (the people of Mazizini) were also affected by the government betterment scheme implemented during *Nkosi* Bangane's reign (Figure 4.1). According to a publication by Fay (2012), *the trust is over! we want to plough!: social differentiation and the reversal of resettlement in South Africa*, the scheme was implemented in the former homeland areas in the 1930s in response to fears of Africans abandoning the rural areas for urban areas due to soil erosion that reduced rural production. Similarly, the publication by McAllister (1991), *reversing the effects of 'betterment planning' in South Africa's black rural areas*, elaborates on the scheme's significance, aimed at not only being used as a tool to manage land use but as a mechanism for consolidating control over rural Black populations by imposing regulations on land use and settlement patterns. Local communities were forced to relocate, abandoned traditional farming methods and traditional structures were disintegrated. The scheme was aimed at controlling rural African populations and divided rural land into grazing, agricultural and residential zones, but also served to reinforce segregation and limit African migration to urban areas (Fay, 2012). The scheme was implemented in the amaZizi community during the 1960s (Figure 4.1). Community members were forcibly relocated to the foothills of the mountains. The elderly participants shared that *Nkosi* Bangane ordered them to leave their homesteads (known as the old homesteads/*amanxiwa*). *Nkosi* Bangane was believed to be in support of the betterment scheme. This relocation was done to facilitate the installation of fences, but the majority of locals were not informed about the true reason they were required to leave their homes or the purpose behind the erection of the fences. However, some community members, including Mr Mtolo and *Nduna* Miya, were aware that the relocation was due to development and better housing that was promised, although these promises never materialised. Evidence of fencing erected surrounding the Royal Natal National Park (RNNP) was found in records from the Provincial Secretary of the Department of Native Affairs (file no.4/3/3671, 1943 and file no.22/28, 1956). After the local members of the community were relocated, many of them felt that the relocation had more to do with the police having better accessibility to do raids in their community.

Moving to the foothills of the mountain meant that police vans could be used instead of horses. Many elders felt that their traditional way of life was affected. Prior to the Betterment scheme, they had lived along the Ndlankomo mountain, and they were close to indigenous forest patches, whilst crop fields were maintained along the foothills (Mr Mtolo).

During the apartheid period, the traditional leadership of Mabasa was also adversely affected by the influences of education, which progressed through the establishment of the secondary school. Mr Njokweni acknowledged that the local people “abandoned their culture and customs in exchange for modern norms that come with education”. Some of the oral history participants claimed that the effects of this trickled into the TA. For example, *Nkosi* Bhukwane’s son, *Nkosi* Justice, was less conservative, more “open-minded” and less “strict” when it came to traditional practices (Figure 4.5). The elderly participants shared that *Nkosi* Justice abandoned most of their traditions, including the Rain ceremony, *Nqina* ceremony, and rituals conducted for ancestors in the sacred Funjwa forest. They felt the abandonment of these practices was because the *Nkosi* had received a formal education. The participants also disclosed that *Nkosi* Justice also supported the establishment of the two game reserves in the area (Figure 4.1), which included the Funjwa forest and parts of Lake Sibayi. According to Mr Nxumalo, the reason why *Nkosi* Justice supported the establishment of the game reserve extended beyond economic or environmental considerations; it was also about raising awareness and fostering respect for the SF. The reserve fence was later destroyed by the local community in 1993. The reasons for this included that the *Nkosi* did not take into account that people were dependent on the forest (planting close to rivers and lakes, herding their livestock, cutting grasses for thatching and crafts, and fishing in the lakes and rivers). Mrs Ntuli stated that locals were angry because they had been cut off from these resources. Some felt that the *Nkosi*’s support for the establishment of the reserve resulted in a further loss of respect for the TA (Mr Thwala).

Similar to Mabasa, access to formal schooling increased. More schools were built in the area as the importance of education became increasingly recognised. It was also noted by some of the elderly participants that some locals were able to send their children to prestigious schools in Durban and the Roman Catholic school in Marian Hill. The increase in value placed on schooling affected duties traditionally performed by boys such as herding cattle (Figure 4.6). In contrast, young girls were encouraged to stay at home and tend to their chores. For example, Mrs Mbele described how she continued to herd and milk goats whilst her brothers attended school. The female oral history participants explained that the community felt that young girls who attended school would become too ‘Westernised’ and were labelled as ‘loose’. The need for access to formal education for children grew. High schools were later built in the community. Some of the elderly participants felt that increasing access to formal education undermined local knowledge and practices that they knew and upheld for generations. For example, Mr Mtolo described that he felt that the education they received made people feel that they should not follow their culture. Formal education caused people to doubt themselves and their culture because people feared that educated people would not take them seriously. Mrs Mbhele described how

she felt about the increase in formal education as it may have contributed to a change in attitude and a lack of respect towards TA and ancestral practices.

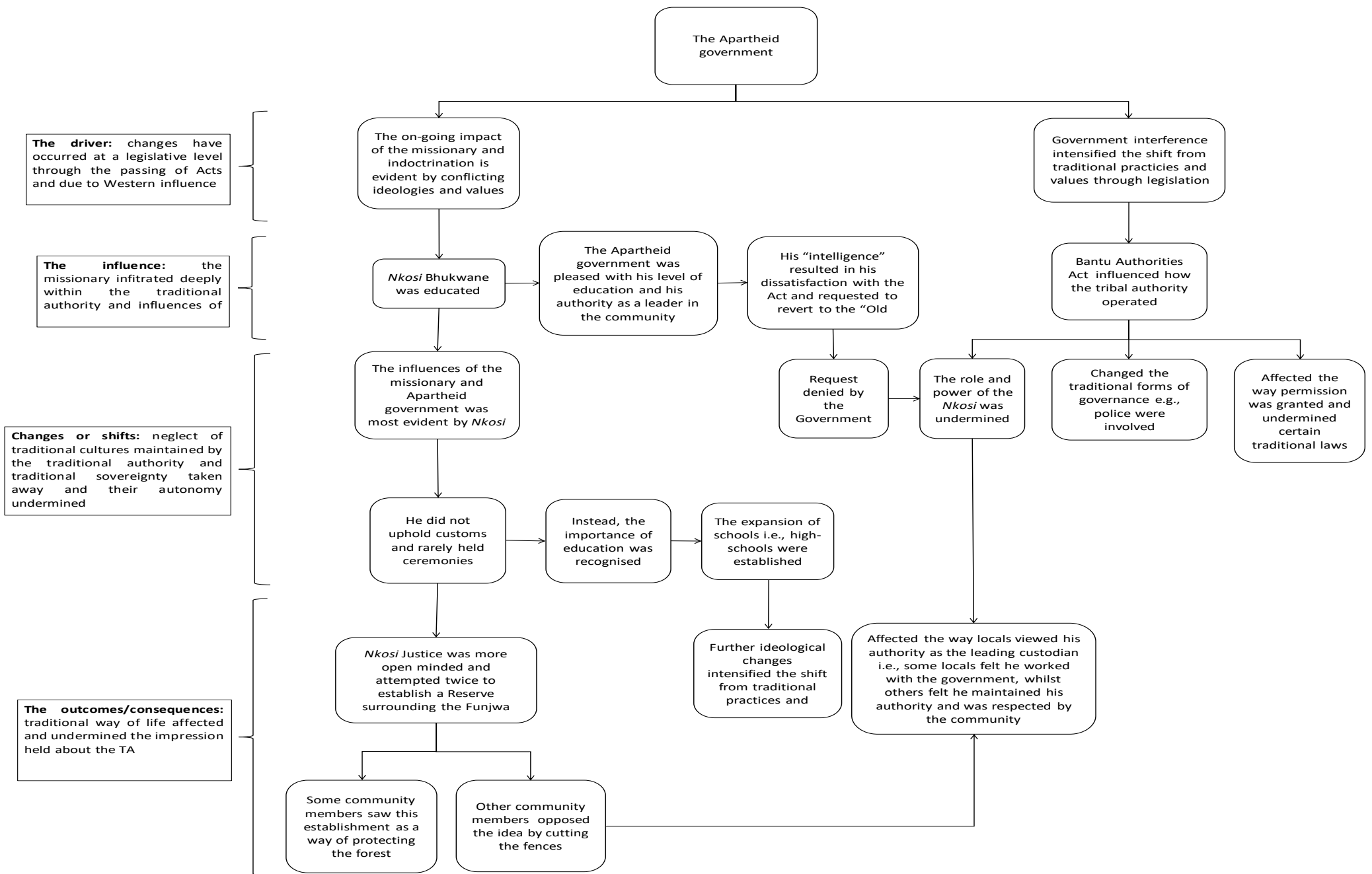


Figure 4.5. Apartheid period: the impacts of government interference and the influence of the missionaries on traditional governance, including socio-cultural changes due to the introduction of education in Mabasa.



Figure 4.6. Apartheid period: the government's interference in the affairs of the TA and on the cultural traditions of the amaZizi community.

4.3.4. The democratic transition: addressing past injustices or aiding further cultural losses?

The majority of the elderly participants from Mabasa and Mazizini accused the current government of being much more detrimental to the autonomy of the TAs and undermining the heritage of both communities. For them this had to do with the Constitution of the Republic of South Africa established in 1996. In Mazizini, the *Nduna* felt that the government as a result of the law contributed to the breakdown of the integrity of the TA. Mr Mtolo explained that the locals do not always heed the *Nkosi's* call when summoned to the traditional council as they no longer feel obligated. Similarly, Mrs Mbhele explained that the TA's influence and control have decreased, leading to locals being less inclined to adhere to the customary law. Many interviewees contrast the present day with the apartheid period, during which time it was felt that amaZizi community members were more attentive to the *Nkosi* and his laws. The oral history participants stated that the *Nkosi* used to be a prominent and well-respected leader during the apartheid period. The reminiscence of a better past is an inevitable effect of oral history as the past tend to be mobilised as a societal critique. During the transition phase into democracy (1980 to 1990), the TA received help from *ezemvelo* (nature) rangers or forest guards would help to enforce rules that were made, whilst the *Nduna* (community headmen of the *Nkosi*) would inform the community about restrictions on forest use. Community members were also required to seek permission from the *Nduna* before accessing the Ndlankomo mountain. This custom is no longer widely practised. In contrast, the sacred *Hlathi lama Khosi* is still protected by the TA and its members of the community. There is still some degree of control being maintained by the TA, for example, traditional court proceedings are still being held, punishments against transgressors are still being carried out and the continued presence of spies and the *iziNduna's* 'help-men' are still active in the community.

The elderly and FG participants in Mabasa shared that similar to the apartheid period, the TA is still 'working' for the government because they are paid by the government. They believe that this has undermined their significance and power. Most FG participants in Mabasa noted that, both during apartheid and today, TAs are perceived as 'working' for the government, since they are paid by the government. They felt that this connection between the government and TAs further undermined their significance and power. For example, the Department of Cooperative Governance and Traditional Affairs (COGTA) is involved or intervenes in traditional courts proceedings. It is for this reason that Mr Njokweni believes that people abide by the government rather than by the *Nkosi* or the TA. The elderly participants also pointed out that the TA has lost some of its autonomy because community members are no longer dependent on them. The oral history participants explained that the locals are not supported by the TA when disputes are reported, instead, the TA advises community members to take their disputes, e.g., stealing of cattle, domestic cases, etc., to the government. The informants felt that due to community members relying too much on the government instead of the TA, has resulted in the traditional council's ineffectiveness. The increase in transgressions or disregard of customary rules in the community is also perceived as the current TA not effectively tackling problems.

The elderly participants explained that this inaction taken by the TA has reduced their authority.

Community no longer have respect for them. However, both councillors felt that the government holds the TA in high regard and that they (TA member or the *Nkosi* himself) are represented when meetings are held. The amaZizi ward councillor explained that although the TA works under a cooperative government, they are still autonomous. As a result, the TA works independently and can raise any issue with the ward councillor and vice versa. Others felt different for example, Mrs Luvuno explained she had not observed any difference between the ruling *Nkosi* Miya and his father because "...things are still as they used to be". For example, locals are required to pay a fine in the form of money or livestock, and there are still traditional court proceedings are still being held. Similarly, Mrs Mandaba and Mrs Sibeko believe that locals still follow traditional laws and that the traditional court is still as prominent as it was in the past, even though there have been many changes over the years.

In Mabasa, the elderly participants mentioned that the current *Nkosi* Khulezweni publicly asserts that he is a Christian and does not believe in ancestral customs and traditions. One of the FG participants explained the implications on the preservation of traditional practices due to the *Nkosi* being a Christian. The participant explained that to carry out a Zulu ritual requires the Zulu ancestral belief (Section 3.3.1.3). Whereas belief in ancestors is not necessary when ceremonies are carried out. For example, some Zulus practice certain ceremonies but do not take part in rituals because they do not subscribe to the Zulu belief. As such, the *Nkosi* has not carried out any of the rituals in the SF. Despite the loss of observation of rituals commemorating the ancestors in the forest, Prince Nxumalo felt that this should not affect its sacredness. Both the FG and elderly participants in Mabasa noted that in recent years there has been a significant rise in the number of churches due to the increase in families converting to Christianity. Other elderly participants noted that unemployment and economic opportunism has also contributed to the rise in churches because of some community members establishing churches to "extort money" from congregants. There are many churches in the community today, "almost at every turn there is a church", (Mrs Nxumalo). Mrs Nxumalo described a two-fold impact of the proliferation of churches, (1) the creation of divisions amongst local community members and (2) the continued rise in prejudices and discrimination. Mr Njokweni also expressed his concern about religious denominations discouraging locals from speaking about or venerating the dead, which is a practice that holds great importance to him because he sees the ancestors as part of the community's identity. On the other hand, there are some community members who follow Western religions but secretly still engage in ancestral practices, they "visit *izangoma* when no one is watching", (Mr Thwala).

Similar to Mabasa, the current amaZizi *Nkosi* is neglecting certain cultural practices and traditions. For example, the previous *amaKhosi* would host and participate in the annual Rain ceremony. The locals would gather along the foothills of the Nhlankomo mountain, the mountain gorges or at Mhhwabane, where the San rock art is located. A branch of the *umsenge* (cabbage tree; *Cussonia spicata*) would be burned while locals prayed, danced, and asked the ancestors for rain, and upon their return home it would start raining. This practice was inherited from the San given their widespread "reputation as successful rainmakers" and were referred to as "weather specialists" as illustrated by the *People of the*

Eland (1976) publication. This was also displayed in the National Museum showcased under *The Bushmen, from 20 000 BC* with reference to the shamans (diviners and healers) who were known as rainmakers. The present *Nkosi* has not taken his people to pray for rain, even though his father informed him that he [*Nkosi* Miya] is the only person who has the right to go and pray in the mountain with members of the community standing below him (Bishop Nkabini). Mr Miya, a key informant, explained that despite the community's perception that the *Nkosi* is not following the traditions set by his ancestors, he felt their perceived disinterest of the *Nkosi* stems from the locals' lack of understanding. For instance, certain rituals and ceremonies can only be performed after the *Nkosi* has been "placed on the chair" (Mr Miya), i.e., formerly recognised or inaugurated, during a ceremonial event marking the beginning of his leadership. In the past, the *Nkosi* would visit *hlala nkosi* (where the previous *amaKhosi* lived) after the *Nqina* where locals would feast, sing and dance. *Amagobongo* (the liver of the baboon) would also be eaten "to grow and strengthen the chieftaincy", i.e., as a way of spiritually strengthening the *Nkosi* (Mrs Mbhele). Mrs Mbhele explained that consuming *amagobongo* was a form of cleansing for the *Nkosi*. The grilled liver would induce vomiting which was needed to be done over a dog at dawn to remove *idliso* (witchcraft poisoning). To vomit over a dog is believed "to build *isithunzi* (stature/fear)", a symbol of strength (Mrs Mbhele). It also serves to make the forthcoming *amaKhosi* strong. However, the current *Nkosi* has not followed this tradition. It has been assumed that this is because of modernism, "how things work now is that they are educated" (Mrs Mbhele).

Lastly, the elderly participants in both communities raised a concern regarding the youth's lack of respect for their parents and the elders of the community. Many of them attributed their lack of respect to the passing of the Corporal Punishment Law of 1997. The elders felt that the law provided young people with the possibility to challenge their parents' disciplinary actions. *Nduna* Miya explained that "now you can't say or do nothing...or else you will see the police fetch you here". This sentiment was shared by the majority of the participants in both communities. They explained that the law also affected the ability to enforce discipline in the community, and this resulted in more individualistic behaviour, i.e., a shift from a community-level responsibility to an individual level. Mr Njokweni provided the following example to illustrate this sentiment. He was a herdsboy and if a community member witnessed his cattle going into someone else's garden, he would be beaten by that member. Similarly, Mrs Nxumalo used the following concept to explain "it takes a village to raise a child". Such values have been lost because democracy gave people the idea that a person should only care about themselves. Similarly, Mrs Mbuyazi felt that there has been a moral decay and "dehumanisation" because there is no sense of community anymore. The youth often disregard the advice of their elders, for example, when they are told, "...this is not for you...it is for the old people only", such guidance is typically overlooked. Moreover, when elders caution the youth that they "...shouldn't do a certain thing because if you do, such and such will befall you", these warnings are often disregarded. Mrs Luvuno, from Mazizini, expressed her frustration with the youth, stating that the youth are "hard-headed" despite being given guidance. Mrs Ntuli from Mabasa believed that the lack of respect and adherence to cultural traditions

amongst younger individuals is a consequence of them not knowing their roots, for example, they engage in taboo relationships with their kin, due to ignorance of their family history. The increasing disconnection from the cultural traditions and beliefs of the youth has also played out in their lack of involvement or non-participation in traditional ceremonies and their disinterest in learning about their history, traditions, and ancestors.

4.3.5. Culminative impacts on traditional governance of the sacred forests and traditional practices

4.3.5.1. Western conservation models reshaping traditional governance

In Mabasa, the regulations governing the Funjwa forest have become increasingly unclear over the years, primarily due to the changes in traditional governance and management. These changes in the SF's traditional management are attributed to the establishment of game reserves surrounding the Funjwa forest in the years 1990, 1992 and 2002 (Figure 4.1). Due to the repeated establishment of the game reserve, external regulations were introduced that replaced and conflicted with traditional management practices. *Nkosi* Justice re-established the game reserve for a third time in the early 2000s as reported by van Wyk (2003: 12) "In October 2001...the Mabaso Traditional Authority declared its 4 500 hectare game reserve on communal land". Consequently, regulations to access and use the forest changed. Forest users had to obtain a permit (information pertaining to what species would be harvested, and how much would be harvested had to be provided). Reserve rangers or *ezemvelo* guards employed to patrol the game reserve and fences were erected. However, the FG participants explained that the game reserve failed because locals were relocated and they were excluded from the decision-making process. No benefits were derived from the game reserve. The loss of the game reserve meant that traditional regulations surrounding forest use and access were neglected, once the game reserve fences were cut. Some of the FG participants mentioned that traditional governance became almost non-existent. Some felt this led to the loss of respect for traditions amongst some locals. Some of the elderly participants also stated that the royal family no longer takes care of the forest or regulated its usage. For example, cattle now graze freely throughout the forest (Mrs Nxumalo). Focus group participants added that lawbreakers face no repercussions, or the penalties are not significant. In Mazizini, the ward councillor also noted a decline in the TAs ability to control the community over the years. He attributed this weakening to the influences of institutions like the municipality and conservation services.

4.3.5.2. Locals' lack of awareness about the significance, traditions and rules of sacred forests

In Mabasa most locals are unaware of the sacred significance of the Funjwa forest. This is despite *Nkosi* Bhukwane, the grandfather of the current *Nkosi* Khulezweni, who often spoke about its significance, as well as *Nkosi* Justice's attempts to preserve the area as a heritage site. Focus group participants noted that some locals are aware of the ancestral importance of the forest. Only 40% of the FG participants and all three of the key informants attributed ancestral importance to the royal burial sites and the (cultural) historical context of the Funjwa forest. The remaining 60% of the FG participants are unaware

of the history and sacred significance of the Funjwa forest. This lack of awareness is possibly due to none of the elderly participants having any means of transferring traditional knowledge. This inability to transfer knowledge of the SF was attributed to the younger generation's lack of interest in traditional knowledge, the practice of traditions of secrecy and the lack of mentoring opportunities. Additionally, some of the elderly explained that the lack of awareness of the Funjwa site by some members of the community is a result of more recent *amaKhosi* having been buried at the Emzinyeni site. Whilst earlier *amaKhosi* were buried in the Funjwa forest and this knowledge is mostly remembered by the elder generation (Section 3.3.1.3).

Besides the sensitivity and confidentiality that has contributed to the lack of awareness about the Funjwa site the exclusion of women from traditional court proceedings or meetings during the 1960s to 1980s has also played a role (Mrs Ntuli). The exclusion of women is evident in the traditional court minutes for a meeting held with the Native Commissioner regarding the TA and the Bantu Authorities Act of 1951, which was attended by *Nkosi* Bhukwane, his *iziNduna* and 205 male community members. Women were also excluded during the traditional resolution as reported in the Magistrate and Native Commissioner Tribal Resolution. Only men would attend traditional court cases and councils where such matters were discussed, and historical events and stories about the community were recounted or shared (Mrs Ntuli). Mrs Ntuli added that men were not allowed to relay stories shared at the meetings with women back at the homestead because some of the cases were sensitive and were not to be made public. Women were also not permitted to inquire about the Funjwa forest or burial sites, if they did, they would be questioned "Why would you want to know about the royal family, why are you concerned about something that does not concern you?", (Mrs Ntuli). Similarly, Mrs Mbuyazi who was not initially aware of Funjwa and the sacred site, learned about it from young men during the *Nqina* (hunting) ceremony. She later approached her aunt, who was married to Thokolo, one of Funjwa's grandsons, to enquire about Funjwa. However, despite her aunt's marital status of being from the royal family, she was not well-informed about the historical context of Funjwa and the SF and explained things to Mrs Mbuyazi with little detail. Her aunt placed more emphasis on customs, i.e., how people respected the forest and prayed before entering it. Mrs Ntuli stated that with the advent of democracy, women have been included in traditional meetings, and she was able to learn about the royal family's homestead in the forest and that the founding *Nkosi* was buried there. Despite the lack of historical knowledge of the area the FG participants revealed accounts of supernatural encounters that they or other members of the community had experienced in the sacred area of the forest. Mrs Nxumalo explained that the ancestors may appear to a forest user which symbolises the importance of the area and serves to remind the user to be mindful of the sacredness of the forest. As a consequence, the FG participants stated that locals were conscious of the ancestral significance of the forest and preferred to refrain from entering the sacred area, i.e., where King Funjwa's burial site is. However, "[...] some people still use and enter there [the sacred area] without seeking permission [from the ancestors]" (Mbuso) because there are no formal structures of control.

In Mazizini, Mr Mtolo explained that in earlier times, the community was more traditional and adhered to traditional customs and norms like secrecy and reverence. It was also discovered that the elderly in the past would either withhold information or share myths. “The elders had secrets, they didn't want to tell you the truth”, this was to ensure taboos were not broken or that rules were followed, and to prevent people from going to certain places or doing things they were not supposed to. Act of secrecy, reverence and instilling fear served as a form of protection. Despite the community being reserved about discussing the *amaKhosi's* burial practices, particularly due to the location of the *Nkosi's* burial site not being openly shared (especially to non-royal locals and outsiders), it has become commonly known within the community that the *amaKhosi* are buried in the *Hlathi lama Khosi*. The elderly participants explained that they have grown up knowing that forests are reserved for the burial sites of the *amaKhosi* and therefore, believe that these forests hold significance for the amaZizi people. The oral history participants mentioned that they learned about the *Hlathi lama Khosi* from their parents. They had also shared information about the *amaKhosi* who had passed on, including how and where they were laid to rest.

A deceased *Nkosi* would be buried at night by male members of the royal family. The *Nkosi's* body would be taken by the men to the cave in a forest on Ndlankomo mountain at midnight, where the men would keep watch over the *Nkosi's* burial site (Mrs Mbhele). It is also believed that the late *Nkosi* would be wrapped in blankets and seated on an *isigqiki* (three-legged chair), which is significant to the amaZizi people. *Nduna* Miya and Mrs Mbhele explained that the chair is a cultural artefact to the amaZizi because of its unique design (Annexure B) and it being deeply rooted in their culture. Apart from the *isigqiki* being reserved for the men in the community to sit on, it is more exclusively used for seating a deceased *Nkosi* as part of the burial custom (Mrs Mbhele). Once the *Nkosi* is laid to rest, the men on guard check the burial site the following morning to ensure that the *Nkosi's* body was no longer there, though the process of its disappearance was not clearly understood by the FG participants and some of the elderly participants themselves. If the body remains in the forest the next morning, the men would have to wait until the it is no longer sighted. Only then would the men return to announce the passing of the *Nkosi*, first at his palace and then to the rest of the community. No further details about the burial location would be given to the community. Besides the restricted access to the *Hlathi lama Khosi*, as mentioned in the previous chapter, locals are also prohibited from entering indigenous forest patches on the Ndlankomo mountain because “you can't know why I am not going into that one [i.e., one of the indigenous forest patches]. It's a secret for amaZizi”, (*Nduna* Miya). This is to ensure that locals do not become aware of which forest is the *Hlathi lama Khosi*. As such, *Nkosi* Miya stated that the locals do not know which of the forests is the actual *Hlathi lama Khosi* on the Ndlankomo mountain. Mr Mtolo stated that the secrecy surrounding forest burials in the amaZizi community is evident by the tradition only being known to the royal family. Finally, both the FG and elderly participants mentioned that they do not know if the *amaKhosi* are still buried in the forest or if there was any truth in what has been shared with them over the years.

4.4. Discussion

4.4.1. Summary of significant historical events and key differences between the two sites

The timeline (Figure 4.1) provides an overview of the historical events that shaped the developments in both communities across three political periods: colonialism, apartheid, and democracy. The timeline provides a roadmap for understanding the cumulative impacts of these events in each community on local governance, cultural practices, and other biocultural relationships with their SFs over the years. Whilst there are some historical overlaps such as discriminatory policies in both communities that affected the traditional governance, certain historical events in Mabasa and Mazizini took distinct paths, reflecting how local governance systems, cultural beliefs, and external political influences shaped each community's biocultural relation with the SFs.

The timeline highlights the differences between the two sites and how the changes have shaped the present. In addition, some events, such as the introduction of education, provides insight into shifts in local beliefs and the community members relationship to their SFs. In contrast, other events, such as the establishment of the game reserve in the Mazizini community have directly driven transformations in the cultural landscape by altering land use, restricting community access, and undermining cultural connections to the landscape. In Mabasa, colonial policies and the establishment of reserves by the *amKhosi* over the years had a more direct role in regulating SFs. In contrast, Mazizini's strong adherence to local customs and resistance to external pressures helped preserve traditional practices and the cultural significance of its SFs. These differences underscore how governance and belief systems influence conservation practices and the integrity of cultural landscapes.

4.4.2. The impacts of colonialism on traditional practices and beliefs

Colonialism had various impacts on both communities. From the narratives and historical accounts reviewed the establishment of the mission and the National Reserve in Mabasa and Mazizini, respectively, had the greatest impacts. The missionary opposed beliefs in the ancestors, which are central to the Zulu culture and spirituality, i.e., the belief in and worship of God (*Nkulunkulu*) and the commemoration of ancestors as they help, guide and influence various aspects of daily lives (Von Kapff, 2011). As a result, the missionary church's presence and influence led to the indoctrination of the Mabasa community. The exposure and influence of Christianity through the local Western-based school and hospital by the missionary further facilitated the indoctrination of Christianity. The initial acceptance of the missionary church was primarily due to the social benefits it offered to the community. This acceptance reflected the prioritisation of instrumental values over spiritual (relational) values, despite living in a time of greater cultural integrity, i.e., when cultural traditions were mostly intact, respected and adhered to. Even though the church espoused a negative view of the African traditional religious system and termed it "evil doom and fetish" that needed "to be destroyed" (Agbaeze *et al.*, 2013: 697), locals increasingly accepted the Christian faith. Many followers of the church rejected their forefathers' beliefs and indigenous traditional values. The same sentiment was shared by the current

Nkosi in Mabasa. Such findings have also been recorded in other colonised communities. For example, the people who embraced Christianity in Nigeria typically shunned traditional religion (Babalola *et al.*, 2014). Likewise, in Meghalaya, India (Mahaseth *et al.*, 2023: 331) “traditional religion and culture have been replaced by Christianity”. The adoption of Christianity or changes in religious beliefs contributed to the neglect of cultural beliefs that are central to and in support of SFs (Babalola *et al.*, 2014). Consequently, it has negatively affected the ancestral preservation and conservation attitudes of the majority (Ormsby and Edelman, 2010; Eneji *et al.*, 2012; Agbaeze *et al.*, 2013). Ormsby and Edelman (2010) and Eneji *et al.* (2012) affirm that Christianity, or the conversion of people to other mainstream religion, erodes African traditional beliefs and weakens the protection and conservation of SFs in Africa (Agbaeze *et al.*, 2013; Babalola *et al.*, 2014).

Zulu beliefs and traditions like rituals, traditional attire, dancing, music, etc., were deemed as ‘savage’, ‘provocative’, ‘backward’ and ‘uncivilized’ (Theron, 1975; Leech, 1997; Shongwe, 2004), and were “denounced as bad and immoral” (Okeke *et al.*, 2017: 4). These views contributed to the process of indoctrination that was accelerated by the missionary schools. The Mabasa locals moved further away from the customs and traditions that were once central to their identity. Indoctrination through the colonial education system also facilitated the departure from traditional practices and changed the local perspectives and values to more Western ideologies. Members who accepted Christianity in Mabasa discouraged other community members from practicing their ancestral beliefs, that were against the teachings of Christianity. Instead, they encouraged local community members to embrace new values that were more aligned with Western ideologies (Theron, 1975). People who adhered to their traditions were looked down upon to the extent that derogatory terms were used. Like the Mabasa Evangelical Christians, the non-participation of the Methodist Christians in Igbo land, Nigeria, eventually resulted in great discrimination and estrangement in relationships shared with traditionalists (Okeke *et al.*, 2017).

Traditionalists believed in observing the customs and beliefs of their ancestors. Consequently, St. Keyes missionary church contributed to the establishment of other church denominations in the community because some households held onto their belief that their ancestors should be recognised and venerated alongside Christian observances. This process was common throughout the world where Christianity and Islam resulted in new religious beliefs and practices becoming incorporated into ways of worship in native cultures (Adogame, 2016). The shift did not entirely replace indigenous religions. Some indigenous beliefs and practices were preserved (Adogame, 2016). Similarly, Christian observances affected the authenticity of the Zulu culture contributing to cultural breakdowns. Despite having altered some of the traditions, some of the Christian denominations have retained certain aspects of the Zulu belief system and cultural traditions. However, the rise of various denominations, i.e., churches that are more accepting of Zulu practices, resulted in divisions in the community. The relations between traditionalists and Christians resulted in a contentious situation of disagreements and conflicts (Okeke *et al.*, 2017). The adoption of Christianity also undermined the community’s commitment to preserve and transmit knowledge about ancestral values and practices. Hence, the lack of commitment had

generational impacts, leading to altered values, ideologies, norms, beliefs and traditions within the community. Similar effects of missionary schooling were evident amongst the Igbo people in Nigeria, particularly amongst the younger generation who were not strongly connected to their ancestral beliefs and made converting them to Christianity easier (Okeke *et al.*, 2017). The introduction of Western education also prompted communities to question various aspects of their lives, resulting in the discovery of new concepts, worldviews, and ideas, some of which were in opposition to their culture or undermined the significance of traditional practices deemed outdated or irrelevant. Like the missionary church in Mabasa during which learners were indoctrinated, the village church-school teachers in Nigeria were referred to as “church agents” as they were “very active in moulding the attitude of the converts, especially the young, toward the traditional society” (Okeke *et al.*, 2017: 4). Moreover, formal Western education influenced the way locals viewed themselves, with some developing a dismissive attitude towards traditional beliefs, while others questioned their validity. Hence, for many missionary schooling resulted in the “denial of one’s culture, and most importantly, one’s history”, which has become “integral part of the history of the Western encounter with Africa” (Shongwe, 2004: 79).

In Mazizini, the establishment of the National Reserve led to several issues because it excluded the locals from the area of spiritual importance, i.e., where the amaZizi *amaKhosi* were laid to rest, which then disrupted the traditional ancestral veneration practice (*asebaguqa* ritual). The exclusion of the amaZizi due to the establishment of the National Reserve also affected the *Nqina* ceremony. The exclusion of the amaZizi resembled in some ways a common occurrence. Many indigenous communities have been expelled from their ancestral lands due to conservation efforts (Chatty and Colchester, 2002). The approach to conservation was underpinned by the idea that nature could only be preserved uninhabited by people. An approach adopted in the creation of the Yellowstone National Park (Colchester, 2004). Consequently, conservation fostered the philosophy of protecting the environment through the cost of displacing local communities (Chatty and Colchester, 2002; Colchester, 2004). Like the amaZizi, the Maasai in East Africa were excluded from their land due to early colonial policy for the establishment of a PA (Chatty and Colchester, 2002). Forced relocations also took place in India where an estimated 600 000 indigenous people were displaced, as well as in the Kahuzi-Biega National Park in the Democratic Republic of Congo (DRC). The local Twa people of the DRC were removed from their ancestral lands during the 1960s (Colchester, 2004). This expulsion threatened not only their livelihoods but also their culture (Colchester, 2004). Although the amaZizi could no longer continue their traditional practices in the PA, the amaZizi community demonstrated cultural resilience by adapting and continuing their traditional practices. Their cultural resilience is reflected in the establishment of the *Hlathi lama Khosi* and the continued practice of the *Nqina* ceremony on the Ndlankomo mountain.

It is this kind of resilience that has contributed to the increasing recognition of the role of indigenous people and local communities in biodiversity conservation and has changed the initial approach of Western conservation efforts (Wild *et al.*, 2010). For instance, Bhagwat and Rutte (2006) emphasised the important role of nature conservation traditions from biodiversity-rich countries that have protected

nature on the grounds of local traditions and beliefs that exist in the face of various threats. The continued existence of these tradition-linked sites reflects their resilience, therefore, their incorporation into the PAs network could aid in achieving conservation objectives, i.e., the increase in the variation of protected habitats and the inclusion of local community support (Bhagwat and Rutte, 2006). Lastly, the introduction of formal education by some amaZizi members of the community was frowned upon by the elders, who predicted implications for the cultural heritage of the community. Nonetheless, schools were still built. Recent studies have shown that Western methods did not recognise the significance of traditional methods, instead Western methods undermined traditional knowledge and practices by considering them primitive or outdated (Chandranth *et al.*, 2004; Nganso *et al.*, 2012; Migosi, and Ndege, 2013).

4.4.3. The effects of the apartheid regime on the traditional authority and the local community

4.4.3.1. Discriminatory legislation

The already compromised cultural heritage in Mazizini and Mabasa was further undermined by the apartheid regime. The apartheid government aimed to regulate and control all aspects of the indigenous life to ensure they were not subversive or a threat to the apartheid system (Kelly, 2015). Leech (1997) assessed various publications such as Said (1978), van Wyk Smith (1979) and Martin (1982), that portrayed Western fears over Africa. These fears were attributed to the perception of African cultures as less civilised, including the element of uncertainty as well as the unknown, that warranted control through force (Leech, 1997). The apartheid government institutionalised racial segregation. Discriminatory policies such as the Bantu Authorities Act of 1951 were introduced to control the lives of Black people, including cultural practices (Ray and Reddy, 2003; Kelly, 2015). The Act promised traditional leaders “greater administrative authority”, but contributed to a misleading sense of independence as TAs were co-opted into government structures and faced limitations in their roles (Kelly, 2015: 278). The restrictions on traditional leadership through the legislation served to ensure that the government had knowledge of what was going on in the ‘homelands’ as well as control over the homelands. Baloyi (2016) also claimed that the Act enabled the apartheid government to tactically assert its dominance and control over traditional leaders and their homelands. Even though traditional “authorities were granted administrative, executive and judicial powers”, a *Nkosi* could only appoint his council members subject to the approval of the State (Kelly, 2015: 278). The State nominated traditional council members (Kelly, 2015), and the extent of this was particularly evident in the amaZizi community, wherein a regent, Vuna, was installed as *Nkosi*, even though this was not approved by the elders of the community. Lissoni and Ally (2019: 1) also touched on the nationwide “illegitimately installed chiefs” through the Act that was claimed to give the right to self-determination. Although Vuna was initially appointed as *Nkosi*, his banishment by the government illustrated the extent of the apartheid government’s interference and control in the community’s traditional affairs.

In Mabasa the respondents indicated that the relationship between the apartheid government and the TA was not made clear, but there was certainty about the oppressive rule exercised by the government. The former uncertainty was due to the lack of representation of commoners during the traditional council meetings, whilst the latter certainty was evident by the political power that the government had over the *amaKhosi* who were forced to comply with the government's orders as evident in both communities. For example, the acceptance of the Bantu Authorities Act and the Betterment schemes, permitted apartheid officials to manipulate chief authorities (Ray and Reddy, 2003; Lissoni and Ally, 2019) by either "rewarding or demoting those who did not co-operate with these administration and betterment policies" (Kelly, 2015: 282). Most *amaKhosi*, like *Nkosi* Bhukwane of Mabasa, found themselves in precarious positions given the threats received concerning their civil and criminal jurisdiction. In this way, the government undermined the leadership role and governance of the TA. Despite this and *Nkosi* Bhukwane being well educated, he still held considerable power and control over his people and was well respected by them. As such, some TAs were still associated with stringent laws based on "tribal custom and coercive force" (Lissoni and Ally, 2019: 1), which in some ways aligned with the autocratic nature of the apartheid government (Kelly, 2015). Hence, the TAs maintained some of their autonomy, as traditional heads were given greater administrative authority, even though it was "an illusion of decentralisation and false autonomy" (Kelly, 2015: 278). Lissoni and Ally (2019) shared a similar view concerning false indigenous autonomy, stating that the Bantu Authorities Act contributed to ethnically defined territories that gave a false sense of black self-governance. Both the Mabasa and Mazizini communities, once 'homelands', were controlled by illegitimate *amaKhosi* considered puppet governments and white officials which served to sustain the apartheid regime (Lissoni and Ally, 2019).

4.4.3.2. Misguided schemes

The Betterment scheme implemented by the apartheid government in the 1950s/60s entailed the forcible removal of residents in the name of environmental 'concerns' (Kelly, 2015). The scheme was introduced in 1939 to rehabilitate or address land erosion and to prevent further damage to lands assigned to rural communities. But according to Christiansen (1996 cited in Mazibuko, 2011: 9), this scheme was "misguided". The elected party implementing such Acts were premised on having control over Black communities by intensifying segregation policies and creating a political system that interfered with every aspect of African life (Kelly, 2015). The scheme restricted the "ownership of physical assets", reduced the areas where the locals could live, limited the number of huts they could construct and livestock they could keep (Mazibuko, 2011: 74). As such, the management of these communities through such bureaucracies were considered as part of a broader strategy to control their urbanisation and maintain racial separation and dominance (Kelly, 2005; Mazibuko, 2011). In addition, in Mazizini, the erection of fencing behind the 'old homesteads' was a shared experience by the people of Nongoma, in KwaZulu-Natal, South Africa, who "cut down fences erected as part of the Betterment scheme" (Kelly, 2015: 288). The relocation of the *amaZizi* from the old homesteads due to the scheme was carried out for two reasons; (1) for easier control and management of the community and (2) to protect nature

along the mountainous areas of the Berg. This act of displacement under the Betterment scheme, which sought to impose environmental protection measures, failed to consider the fundamental human rights of the local communities. Unlike Mahaseth *et al.* (2023: 331), environmental protection efforts did not align with human rights, even though environmental standards that have been established by “international law and practice” support human rights. While international law and practice now recognize the importance of integrating human rights into environmental protection, this historical example highlights how past efforts often disregarded the rights of indigenous communities, undermining both their cultural and environmental well-being. While Chaplin-Kramer *et al.* (2023) acknowledged transforming PA governance toward more inclusive conservation, designed and implemented around the values and needs of local communities as a necessary step in addressing these past failures, challenges are still faced in recognising indigenous rights and enabling effective participation.

4.4.3.3. Western influences: education and the creation of reserves

Like the colonial government, the apartheid government maintained restrictions over access to the reserve. Restrictions were maintained to protect the area’s natural environment and biodiversity and continued to exclude the already marginalised amaZizi. The exclusion undermined their ability to carry out their cultural practices and customs. In Mabasa, despite TAs being intertwined with the government during the apartheid period, the *amaKhosi* were able to proclaim the SF as part of a game reserve. The establishment of the reserve affected traditional laws and the locals’ ability to obtain resources for their needs and livelihoods. The well-being of local community members who were dependent on the forest was compromised. This outcome aligned with the initial approach of the nature conservation model that typically opposed humans over the efficacy of conserving biodiversity (Rath *et al.*, 2020). These changes have contributed to ambiguity between the forms of management of the reserve and the endogenous forms of governance of the sacred Funjwa forest over the years. Initially, *Nkosi* Bhukwane permitted access and use in the SF; with the expectation that residents respected the forest and adhered to the customs of entry and use. However, this changed with the involvement of the police and the government in matters of the community pertaining to fines and penalties against lawbreakers. Requests were made by the *Nkosi* to revert to the old system which never materialised. *Nkosi* Justice’s attempt to establish a game reserve in Mabasa reflects the influence of Western conservation models introduced during the colonial and early post-colonial periods. These models were rooted in Eurocentric ideals that often prioritised the preservation of landscapes for leisure, sport or scenic value over local subsistence needs and customary land uses. Modern-era influences have also been reported in other traditional communities. For example, the Kodagu community in India, wherein consumerism mindsets adopted by community members, due to the economic benefits that could be obtained through plantation and agriculture. Such activities weakened traditional systems of management and beliefs (Chandrakanth *et al.*, 2004). Lastly, the expansion in schooling via the establishment of high schools in both communities during the apartheid period aligned with “the expansion and massification of the education system”

during the 1970s and 1980s (Kelly, 2015: 288). This contributed to the generational ideological transformations between community members threatening the cultural integrity. This is evident by the changes in forms of governance of the SFs and the discontinuity of ceremonies between *Nkosi Mzila*, *Nkosi Bhukwane* and *Nkosi Justice* in Mabasa, and *Nkosi Bangane* and *Nkosi Njabula* in Mazizini. These changes in governance negatively impact the sustainability of SFs in terms of their size, loss of cultural diversity, political impacts, etc. (Chandrakanth *et al.*, 2004).

4.4.4. Addressing the historical injustices and transforming indigenous communities in the post-apartheid state

4.4.4.1. Unintended consequences of the democratic government on the traditional authority

Similar to the apartheid government, the democratic government has been accused of intervening in the affairs of rural communities and traditional court proceedings. As such, the democratic government has also been accused of undermining the sovereignty of TAs for various reasons:

1. The TAs are paid by the government, which is perceived by the FG and elderly participants that the TA is working for the government. Their authority and significance has continued to be weakened.
2. Government law continues to supersede informal institutional laws or customary laws, which undermines the faith of local communities in the traditional systems (Chandrakanth *et al.*, 2004), and reduced the respect communities have for TAs.
3. The government holds the highest authority and constitutional rights to protect its citizens (which sometimes do not align with TA laws or rulings). This aligns with the findings of Mabuza (2008) and Baloyi (2016), indicating that the democratic government aims to transfer power to the people, i.e., all citizens, which means the reduction in the roles and influence of traditional leaders in the public domain. The decline in engagement with the traditional leadership is evident in the amaZizi not heeding the traditional council's summons or “punishments”.
4. The government’s consideration for human rights, particularly amongst the youth in terms of corporal punishment, has affected the traditional methods of discipline, and has resulted in:
 - A shift from community-level responsibility and cooperative discipline to individual level.
 - A reduction in community cohesion with many people no longer feeling a sense of responsibility towards their fellow community members. Given that the indigenous institution has been reduced by the government, its role in fostering social cohesion, “moral regeneration and the preservation of culture and tradition” has deteriorated (Baloyi, 2016: 3).
 - A distorted perception or misguided sense of independence amongst the younger generation.

5. The government takes responsibility for addressing the needs and social welfare of the citizens. Baloyi (2016) also found that TAs' lack social responsibility to local people as they rely on the government for funding to alleviate poverty and create jobs.

6. Traditional laws and rules have no legal backing and are therefore undermined, even though like Nganso *et al.* (2012) these rules were once strong (Chapter 3). Similarly, SFs are usually not protected under formal governmental regulations, but rather rely on social action and customary law being upheld (Mahaseth *et al.*, 2023). In this way, the democratic government has contributed to the institutional disintegration of TAs (Chandrakanth *et al.*, 2004).

The disintegration in the traditional council is evident in their lack of initiative and urgency in addressing community issues, as well as their lack of accountability in following ancestral traditions. The disintegration of TAs, particularly in Mabasa, reflects a lack of rules, regulations and laws that are meant to otherwise punish transgressors, a concern similarly highlighted by Byers *et al.* (2001). Consequently, the TA in Mabasa plays a minuscule role in the management of the forest and they have become complacent. Acts of complacency have been fueled by their belief that the local community is adequately engaged in stewarding nature. In contrast, community members believe that the TA should play a more active role. The TA's passive role in the management of the sacred Funjwa forest concurs with Mahaseth *et al.* (2023), who found that the violation of cultural customs and taboos associated with the SFs are no longer. The lack of enforcement of such acts has led to "heavy consequences, thereby endangering the existence of these groves" (Mahaseth *et al.*, 2023: 330).

Unlike the local communities of Kathmandu Valley, Nepal, in which their staunch religious beliefs and associated taboos have contributed to the traditional management of their sacred groves (Mahaseth *et al.*, 2023), management of the culturally significant *Nhlankomo* forest has changed considerably over the years. Initially, the TA received support from an environmental parastatal, forest guards, the *Nduna* and the general community. This support system of the TA's was further reinforced by the *iziNduna*'s "help men" and spies within the community. This reinforcement helped to ensure that the community were abiding by customary laws, but today permission requested from the TA and adherence to forest restrictions are no longer consistently maintained.

These perceptions of government intrusion into the affairs of TAs are further reinforced by the constitutional framework, which, while recognising cultural and religious rights, simultaneously constrains them through its deeper orientation toward Western liberal values. The 1996 Constitution of South Africa formally recognises cultural and religious rights, including provisions that support communal autonomy and the institution of traditional leadership. However, the Constitution, through the Bill of Rights upholds individual rights, equality and human dignity above all else. This means that whilst the Constitution formally recognises culture, it is secondary to Western-style human rights principles (Goodsell, 2007; Moore and Himonga, 2018). Customary law and TA are therefore subject

to constitutional review. While this creates safeguards against potential abuses, it also contributes to tension. For example, a community may want to follow a customary practice, but the Constitution may deem it to violate an individual's right to equality or dignity (e.g., women being excluded from inheritance or leadership). Goodsell (2007) highlights this paradox that the Constitution recognises cultural and religious rights, including communal autonomy through provisions under Section 31, whilst simultaneously limits it through the primacy of individual rights, equality and international human rights norms. This tension extends to communal cultural practices, including taboos, rituals, and governance of SFs, which clash with Western-derived principles embedded in the Constitution.

Elderly participants' view that the democratic state has been more detrimental to TA than previous governments because of their commitment to international standards and the frequent interpretation of rights through Western ideals. These reflect Western values such as human rights, individualism and secularism, which conflict with indigenous, communal and customary practices, including taboos, forest access and governance structures through which traditional leaders oversee SFs. In this way, Western-derived principles continue to exert structural power by prioritising individual rights over communal authority and traditional practices. For communities in the study area, this structural imbalance has significant implications. For example, TAs are increasingly constrained in exercising autonomy over their cultural heritage, and SF management is subjected to legal frameworks that may conflict with long-standing community norms.

The Constitution reproduces Western values at the expense of TA. When constitutional law emphasises individual choice or equality in ways that conflict with communal norms, it risks undermining the legitimacy of these cultural systems. As customary law is subjected to Western legal lens, the constitutional framework may unintentionally erode the cultural and ecological stewardship capacities of communities managing SFs. For instance, the prioritisation of Western-centric notions of women's rights, and equality over customary practices like inheritance initiation rites or ritual obligations in SFs by the Constitutional courts impact TA and culture, which risks eroding people's respect for the customary law and disconnecting them from local culture. Moore and Himonga (2018) also found that the Constitution subjects customary law to constitutional scrutiny, and explained it as the subordination of "living" customary law that is community-based to "official" customary law that is codified. As a result, constitutional law, despite acknowledging traditional leadership and customary law, constrains them by its deeper orientation toward Western values privileging Western liberal ideals often conflicts with indigenous cultural frameworks (Goodsell, 2007). The disconnect between the Bill of Rights and traditional community and values highlights where constitutional values diverge from indigenous cultural norms. The oral history participants' view that the democratic state has been more detrimental to TA than previous governments reflect this dynamic. Moore and Himonga (2018) similarly argue that colonial and Western legal thinking persists under democracy, not through the outright abolishment of customary law, but by reshaping it into forms that fit Western legal categories. This obscures the adaptive and dynamic nature of living customary law, which is not inherently opposed to human rights.

Concepts like *ubuntu* have underpinned the South African Constitution offering potential pathways to bridge customary values and constitutional human rights in ways that support both cultural continuity.

4.4.4.2. Western influence and ideological transformation through the advancement of education

There was an increase in the number of schools established within Mabasa and Mazizini during the apartheid period, which indicated progress in formal education. Increased accessibility to formal education also increased tensions within the community. Older generations prioritised their traditions, whilst younger generations prioritised formal education. The younger generation has primarily focused on education, relegating traditional practices to a lower priority. The views about the significance of the local cultural heritage of the youth “are considered mere superstitions”, which has resulted in rituals being known to mostly the older generation (Nganso *et al.*, 2012: 2). The lack of the youth’s involvement and non-participation in traditional ceremonies is a clear indication of their disconnection from their cultural heritage. As such, the youth are losing interest in cultural traditions associated with the SF (Nganso *et al.*, 2012; Mahaseth *et al.*, 2023), including their lack of interest in learning about their history and ancestors, which many view as outdated. Babalola *et al.* (2014: 47) pointed out that “the traditional religion is presently skewed to the old people with long years of faith in worshipping of the gods of the land”, as evident in Mabasa and Mazizini. This generational disconnection is not only a matter of choice, but is reinforced by structural factors. In particular, the formal education system in South Africa has historically marginalised local traditional knowledge and indigenous cultural practices, further deepening the erosion of rituals and practices associated with SFs.

Despite the formal political transformation in South Africa after 1994, little progress has been made in incorporating TEK into the school curriculum. Bredlid (2009) and Mawere *et al.* (2022) found that the education system continues to be shaped by Western values and Western epistemologies that marginalise and undermine TEK, leaving it disconnected from the developmental realities of rural communities and their biocultural practices. This disconnection is evident in the neglect of cultural and ecological practices such as sacred forests (SFs), which hold both ecological and spiritual significance. According to Mawere *et al.*’s. (2022: 147) in the study of curriculum transformation in South Africa, even the Indigenous Knowledge Systems (IKS) policy document intended to mainstream IKS, “is flawed by its discernable modernist and consumerist slant.”

Attempts to integrate indigenous knowledge into science and environmental education are constrained by rigid curricular structures (Seehawer, 2023). A comprehensive understanding of IKS recognises not only their ecological aspects, but also the metaphysical and spiritual aspects, as well as cultural values and practices (Mawere *et al.*, 2022). In the context of this study, these cultural practices include traditional governance practices, taboos and rituals surrounding SFs. These dimensions are central to the cultural authority that sustains SFs, yet they are often overlooked in formal education, as evidenced by the lack of SF management by the TA and community over the years. Hence, national education policies neglect the epistemological uniqueness of IKS, and according to da Silva *et al.* (2024) remains

largely theoretical and Western oriented. The metaphysical and spiritual foundations of IKS, which underpin practices like the protection of SFs, are frequently dismissed as “backward,” “rural” or “unscientific” (Ezeanya-Esiobu, 2019, cited in da Silva *et al.*, 2024: 1221). Historically, the introduction of Western education by missionaries in communities such as Mabasa reinforced this marginalisation by framing cultural values and beliefs as primitive and outdated. The continued exclusion of TEK, including sacred dimensions of nature such as SFs, from local curricula illustrates how Western education continues to marginalise and undermine indigenous cultural values and belief systems. Moreover, the complexity of IKS is often overlooked within formal education systems, resulting in indigenous knowledge being regarded as an inferior social experience in spaces of knowledge production (da Silva *et al.*, 2024). To redress this neglect, there is a need for community involvement in the design, implementation and evaluation of educational programmes. Without such inclusion, the cultural practices tied to IKS, such as taboos and rituals around SFs, will continue to be eroded, thereby weakening both their ecological and spiritual significance.

4.4.5. Accumulative effects of the three political periods on the local communities

4.4.5.1. The lack of awareness of the sacred significance

In Mazizini and Mabasa, customary secrecy is enforced through taboos such as the disapproval of discussing sacred sites or royal family matters. The reluctance to openly discuss matters considered taboo due to the confidentiality of discussing royal family matters with each other, including sharing such information with outsiders. Given that customary secrecy is also attributed to select royal family members in both communities, only a few are fully aware of the sacred significance of the forest. Additionally, customary secrecy is practiced ensuring that the location of important graves is not revealed to non-royal community members or the general public and as such, are considered closely guarded secrets by their custodians (Garcia-Varela, 2007; Verschuuren *et al.*, 2010). Customary secrecy is a common practice in other regions too. For example, the story of the Gagyir village, a lost village in Vietnam, including the details about its history and the eradication of the village name remains “a closely guarded secret (among the descendants and survivors of the event) to this day” (Arhem *et al.*, 2015: 284). Unfortunately, the practice of customary secrecy has contributed to the degeneration of knowledge of cultural traditions, which has also contributed to the misrepresentation of cultural practices that manifested the sacred and ancestral relevance of the site. However, some forest users encountered experiences with ancestral spirits in the sacred Funjwa forest. These encounters with forest spirits allude the user to the spiritual significance of the SF, but the effects of customary secrecy seem to have overshadowed the role of the forest spirits. The reduction in spiritual governance is evident by most of the participants remaining ignorant about the deeper connections to the SF and the meaning of these supernatural encounters.

Customary secrecy regarding SFs is also influenced by factors like the physical landscape, forest availability, size, and community dependence. For example, the Funjwa forest’s location was disclosed

to the locals due to its large size and the lack of other indigenous forest patches in the area. In Mazizini, the *Hlathi lama Khosi*'s location was revealed only as one of the indigenous forests on the Ndlankomo mountain (Chapter 3). The presence of having multiple forests enabled the “true” location of the SF site not to be known. Given that the *amaKhosi* burial tradition is exclusively known by the royal family, they are the only ones who know the truth about the location of the site and what transpires at the site. The indigenous forests of the amaZizi have been the secret burial ground of early amaZizi *amaKhosi* (Maloti-Drakensberg, 2019). Consequently, locals avoid accessing the indigenous forest patches to avoid becoming aware of the “true” SF. However, uncertainty surrounding the change in burial location of the amaZizi *amaKhosi* due to customary secrecy as well as the change in governance structures introduced by the apartheid government and the influences of modernity have led to conflicting beliefs surrounding the recent *amaKhosi* burials taking place in the *Hlathi lama Khosi*. Despite this confusion, the FG and elderly participants were familiar with *amaKhosi* burial traditions because *amaKhosi* burial practices have been a part of the Zulu/Nguni culture for millennia (NIKMAS, 2022). Therefore, despite the alleged customary secrecy, residents have developed an understanding of the cultural significance of the *Hlathi lama Khosi* through narratives, cultural traditions, and restrictions surrounding the Ndlankomo mountain.

Limited knowledge of the SF was also due to the elderly community members withholding information and sharing myths, thereby preserving the customary secrecy of the site. Secrecy is upheld to protect important information and to ensure the site is not desecrated and vandalised. Furthermore, it ensures that acts of illegal harvesting remain prohibited, and people are protected from potential dangers like ancestral retribution or encounters with wildlife. Acts of secrecy assist in conserving the area (Anwana *et al.*, 2012). Sharing myths helped prevent residents from engaging in forbidden activities or going to prohibited places. Taboos and myths have contributed to the biological preservation of some sites (Sharma and Kumar, 2021). Acts of secrecy have also contributed to the lack of awareness of the site and consequent disregard for the significance of the site, particularly amongst the youth and those who have abandoned ancestral beliefs. This has compromised the site's cultural integrity, such findings resonate with those found by Khan *et al.* (2008: 285), “it is amply clear that myths and beliefs associated with the sacred groves which used to be followed strictly in earlier days, have been eroded during the last few decades”.

4.4.5.2. The breakdown in the transmission of traditional knowledge, beliefs and practices

All the elderly participants indicated limited means of passing down knowledge due to either cultural shifts amongst the youth or customary secrecy practices. Similarly, Sinthumule and Mashua's (2020), informants were questioned about their means of passing down traditional ecological knowledge (TEK) to the younger generation, to which 95% of the informants admitted that they did not pass on their knowledge to their children. Furthermore, “chosen” members of the community, who are selected to hold or transfer particular knowledge, pass away without sharing their knowledge. This creates gaps in the cultural transmission of traditions and undermines the preservation of traditional knowledge. Many

youth are also losing interest in traditional systems leading to a gradual loss of history in both communities. A similar trend was described by Chandrakanth *et al.* (2004) in India. This shift is becoming more apparent, i.e., there are differences in knowledge of the sacred sites' history among older community members, particularly amongst men (Allendorf *et al.*, 2014). Consequently, the “accumulated wealth of millennia of human experience and adaptation” is increasingly lost (Posey 1983 cited in Khan *et al.*, 2008: 285).

Most SNS are traditionally the territory of men, with minimal or no participation or inclusion of women (Sinthumule, 2022). Although women are often seen as important agents in preserving knowledge as they are considered the storytellers in communities who pass knowledge to their kids. The patriarchal societal system also sees women as the caretakers of the homestead and the bearers of children. Women are often given responsibilities that are viewed as insignificant and are often excluded from participating in rituals in the SFs or its management (Mokashi and Diemont, 2021). Particularly in Mabasa, women were excluded from traditional court proceedings and meetings in both communities, where discussions about the royal family, community history and related issues occurred. Additionally, men were prohibited from retelling or sharing information during meetings and court proceedings further highlights the extent to which women were excluded from important matters. This exclusion is particularly evident in the case of an elderly female participant, closely related to the royal family, who remained poorly informed about the community's heritage. The exclusion of women over the years has become increasingly problematic with the introduction of Western influences that contributed to the breakdown in knowledge transfer and the adherence and veneration of cultural practices. The breakdown in knowledge transfer has also been exacerbated by the reduced authority and significance of TAs and the decreased attachment given to local beliefs and cultural practices. This has been particularly noticeable amongst younger members of the communities. Prior to these external influences, traditions continued for generations despite the exclusion of women. Martin *et al.* (2011: 45) revealed that beliefs and cultural norms are passed down through generations via “cultural transmissions” such as ceremonies, rituals, stories, language, etc., and enforced through punishments against offenders. Not all societies practice the exclusion of women from SNS as seen in the Tibetan communities in China or in Bhimashankar region in Western India (Sinthumule, 2022). Women in some areas hold a high status in their involvement in rituals as well as the management and protection of SNS (Sinthumule, 2022).

The youth's increasing disassociation from nature was attributed to “cultural evolution”. They were perceived as no longer valuing religious and cultural beliefs and practices due to the influences of modernisation, religious conversion and urbanisation (Mahaseth *et al.*, 2023: 330). Mahaseth *et al.* (2023) recorded similar findings amongst the youth in similar biocultural communities, noting that many distance themselves from ancestral beliefs and other traditional cultural practices. This shift is seen as part of a broader trend where younger generations have become less inclined to uphold the cultural and spiritual connections that have historically shaped local relationships with nature. For example, in Mabasa, the youth are viewed as disinterested in their cultural heritage because they are unaware of their

roots, i.e., their cultural history and the sacred significance of the Funjwa forest. Responses from the younger FG participants during the workshops also revealed their lack of knowledge about the sacred site's significance and other indigenous knowledge.

4.4.5.3. Understanding the perceived inabilities of the *amaKhosi*

Even though past *amaKhosi* played a significant role in commemorating *Nkosi* Funjwa, which included the attempt to proclaim the sacred site as part of a reserve, many community members remain unaware of the site's significance. Unlike Agbaeze *et al.* (2013), the focus of creating the reserve in Mabasa by *Nkosi* Justice was not to address the negative beliefs, perceptions and attitudes locals have towards the SF, particularly amongst Christians, but rather to uphold and honour their ancestral heritage. However, it appears that the presence of the Emzinyeni SF diminished *Nkosi* Justice's efforts and contributed to greater unawareness of the significance of the older Funjwa forest amongst the locals as the focus shifted to the Emzinyeni SF. The change in the burial location of the Emzinyeni site led to a gradual deterioration in the practices and significance of the Funjwa sacred site and has contributed to the community's ignorance about the significance of the Funjwa forest. An example of this deterioration is the royal family's failure to conduct ceremonies in the Funjwa forest that are traditionally held annually or when the need arises (Babalola *et al.*, 2014). However, it is of importance to also acknowledge that no ceremonies are being conducted in the Emzinyeni forest either.

The influence of mainstream religions, driven by increasing fundamentalism or religious conversion (Khan *et al.*, 2008; Brosius *et al.*, 2010), has contributed to the absorption of cultures. This, in turn, has led to a lack of cultural awareness and identity, as traditional cultural practices are increasingly discouraged. Moreover, the absorption of cultures disintegrates cultural integrity by shifting focus away from traditional belief systems, particularly those emphasising the sacredness of nature. As a result, less importance is given to spiritual dimensions, diminishing the value of SNS and the cultural practices central to these sites (van Andel, 2012). The current *Nkosi*, *Nkosi* Khulezweni, in Mabasa, is a staunch Christian and attempts to persuade people by sharing his beliefs. The *Nkosi* no longer upholds practices that involve the commemoration or veneration of the ancestors, because these ceremonies and rituals require the belief in the ancestors (Okeke *et al.*, 2017). Similar examples have been reported elsewhere, for example, the Methodist Christians in Igbo land, Nigeria, refused to partake in the annual ancestor festivals, which include ceremonial rituals that do not align with and are not permitted within their faith (Okeke *et al.*, 2017). Therefore, the *Nkosi* in Mabasa abandoned most of his ancestral beliefs and practices. As a consequence, the community has also increasingly distanced itself from many of their traditional practices and their ancestral belief system (Chapter 3). Whilst some traditionalists have lost respect for *Nkosi* Khulezweni because he does not follow in the footsteps of his forefathers. Although there has been a gradual disconnect by locals from the sacred Funjwa forest, which has been contributing to its neglect, the belief held onto by members of the royal family (the supreme custodians of the forest) is that the sacredness of the Funjwa forest should remain unaffected. Similarly, in Mazizini, the engagement and cultural significance attached to ancestors through prayers, ceremonies and rituals have

declined in recent years, and this is partly due to the current *Nkosi*. The *Nkosi* has faced criticism for failing to uphold ancestral practices like the Rain ceremony, due to the adoption of new values and ideologies through modernisation and education. However, it must be noted that the *Nkosi*'s perceived inability to preserve ancestral traditions is a consequence of him not yet being inaugurated. This is not widely known in the community and has led them to question his authority as *Nkosi*. Regardless, the cultural losses and changes have affected the biocultural relations in the community. Furthermore, the cultural breakdown in knowledge and practices have been characterised by some as signs of moral decay and a lack of community cohesion (Nganso *et al.*, 2012). The inability of the TAs to foster, encourage and uphold cultural belief systems amongst its people falls short of what they are meant to do (Baloyi, 2016). Baloyi (2016) has claimed that the TAs consist of members who represent cultural leaders from within their communities, and that they are meant to contribute to creating social cohesion and moral regeneration within their communities.

4.5. Conclusion

Throughout the three periods, the local communities experienced profound transformations in the socio-political and cultural landscapes. The socio-political changes of the colonial government undermined the traditional ways of life and indigenous institutions. The introduction of Christianity in Mabasa resulted in the indoctrination of the locals that either limited, undermined or altered cultural traditions, practices and beliefs. Those who embraced Christianity distanced themselves from their ancestral beliefs, which inevitably contributed to the neglect of local spiritual practices, values and cultural customs of the SF. In Mazizini the establishment of the reserve by the colonial government affected one of the most integral cultural traditions, yet illustrates the community's resilience and adaptive nature. This adaptation led to the creation of the *Hlathi lama Khosi* and enabled the continuation of the *amaKhosi* burial practices. The onset of the apartheid government further contributed to the deterioration of biocultural relations within both communities through (1) the expansion of schooling and (2) the apartheid government's influence on the integrity and sovereignty of the TA. Formal education contributed to changing beliefs and ideologies, and deepened cultural losses, whilst state control disrupted leadership succession and TA sovereignty. The lack of sovereignty of TA was also highlighted through prejudice and discriminatory government schemes masquerading as a concern for local development. The advent of democracy and its implementation of constitutional laws continued to affect traditional governance structures and their ability to preserve the local biocultural heritage. Local community members grew increasingly less responsive to their traditional leaders and their traditions. They became more dependent on local government structures as they attempted to implement human-centred development, addressing the injustices of the past. The democratic government efforts to recognise TAs have, unfortunately, undermined the role and authority of traditional leadership even further.

The influences of the three major socio-political periods have affected or reshaped traditional governance structures and cultural beliefs and practices in both communities. These changes have

threatened the cultural integrity of the SFs, particularly in Mabasa. In terms of traditional governance, the TAs have lost their integrity as the leading custodians in preserving these sacred landscapes, thereby compromising the integrity of the site. Reduced stringency of traditional laws undermined the adherence to traditional customs and practices which served as means to protect and maintain the SFs. Likewise, the disdain for indigenous religious systems eroded cultural preservation efforts, threatening the long-term sustainability of these sites. Moreover, ignorance of traditions that resulted from the adoption of Christianity by the *Nkosi* of Mabasa and consequent inefficiencies in being the leading custodian of the cultural landscape. This illustrates the long-lasting impacts the local colonial history has had on the local culture in both communities. The chapter has further highlighted the gradual shift from cultural traditions due to the historical lack of awareness amongst community members, particularly amongst the younger generation. Their lack of participation in traditional ceremonies also serves as a clear indication of the youth's disconnection from their cultural heritage. Understanding the implications of ideological transformations provides insight into what these changes mean for the future or the cultural integrity of these SFs (which will be further explained in Chapter 8). While in Mazizini, despite the drivers of change over the three political periods, customary secrecy still serves to conceal the *Hlathi lama Khosi* and has contributed to the ongoing preservation of the site. But the lack of disclosure has resulted in uncertainty amongst the amaZizi about SF rituals and has also largely impacted the youth's commitment to local traditional beliefs and customs.

Part 3: Current Ecological and Socio-Cultural Context

Chapter 5: Forest benefits, relational values and their influence on conservation efforts

5.1. Introduction

In many traditional societies, the relationships with SFs are deeply rooted in their traditional religious belief systems and sociocultural practices (Agbaeze *et al.*, 2013). It is these relationships that guide locals' interactions and influence the rules of behaviour within the forest. Besides the spiritual and cultural role of SFs, they also offer numerous socio-economic benefits to local communities (Oviedo *et al.*, 2007; Mahaseth *et al.*, 2023). Therefore, relationships with nature are influenced by the benefits derived. Given the understanding of the rules and regulations surrounding the SFs in Mabasa and Mazizini communities and the consequent differences in the extent of permitted access and use between SFs for such benefits (Chapter 3), this chapter examines the tangible and intangible benefits of the SFs to the communities. By determining these uses, insight regarding the biocultural relations and values manifested can also be gathered. Understanding these relationships with SFs and the values attached to the SFs is important because it explains the role that SFs play in people's everyday lives (Allendorf *et al.*, 2014). Therefore, the chapter documents forest uses that extend beyond their sacred functions, listing and ranking them based on user needs, relevance, and preferences to determine how SFs are valued. In addition to examining how individual community members use and interact with the SFs, broader community-level perceptions of the relationship with the SF were explored.

Moreover, values and meanings that are attributed to the sacredness or spirituality of a sacred site invariably promote conservation ethics (Anwana *et al.*, 2010; Mahaseth *et al.*, 2023). As such, the chapter also examines values and perceptions to determine how the sites are revered, and if there have been changes in reverence and rules of use of the SFs over the years. In this way the chapter answers whether the values attached to the SFs have remained intact or are changing, i.e., the changes in forest customs and its protection as opposed to how the sites were preserved or venerated as outlined in Chapter 3. This understanding is important given that increased abuse and degradation of SFs is often a consequence of changing attitudes of local communities towards the preservation of SFs (Pandey and Rao, 2002; Agbaeze *et al.*, 2013, Babalola *et al.*, 2014). The chapter answers whether the values and reverence for the SF have been influenced by the changes outlined in Chapter 4, and what implications these have for the preservation of the sites. These implications specifically look at whether the values help to revive, rekindle or reinforce a conservation ethos.

5.2. Objective, research questions and methods

The objective of this chapter was to determine in what ways local perceptions, beliefs and values affect the integrity and condition of the SFs. To achieve this objective the following research questions were answered:

1. What benefits are obtained from the forest?

2. What values are attributed to the SFs and do forest uses influence community members' values attributed to the SFs?
3. What are the broader or community-level relationships with the SFs and are these influenced by cultural values and beliefs?
4. Given the changes discussed in Chapter 4, has reverence for the SFs been affected? If yes, how?
5. Do the value systems associated with the SFs contribute to their conservation? If yes, what are some of the traditional conservation practices and knowledge?

This chapter uses multiple methods to achieve the objective. The chapter primarily makes use of the listing and ranking of benefits from nature. The FG participants were required to rank the benefits based on what they considered important to them or what they felt was important to the community (Section 2.4.2.3.2). The chapter also makes use of the participatory mapping. The FG participants were required to identify areas or significant features for three categories (Section 2.4.2.3.1): (1) ecologically significant zones, (2) “use zone”, and (3) socio-cultural features. Additionally, a trend analysis was included to understand the changes in reverence and rules of use of the SFs over the last 20 years. The 20-year period was divided into two periods: 2000-2010 and 2011-2020, which are referred to as the first and second periods in the trend analysis findings. The narratives reflected upon in this chapter were collected during the FG discussions (Section 2.4.2.3.4), key informant interviews (Section 2.4.2.4) and the oral history interviews (Section 2.4.2.5) to understand the complexity of these values, at a community and an individual level.

5.3. Results

5.3.1. Ecosystem services

Although the Funjwa forest is accessible to all, resource extraction from the sacred area of the forest is discouraged and this area of the forest is supposedly restricted by the TA. The FG participants mentioned that the forest offers various benefits and is mainly used by outsiders and some of the locals. The SF was acknowledged as contributing to livelihoods and offering a repository of medicinal plants for traditional healers. Apart from these provisioning services, the Mabasa FG participants also pointed out that the SF offers supporting services by contributing to the production of oxygen and rain. Additionally, participants acknowledged the role that the SF plays in the “fertility” of the land and in supporting the health of the community. Its contribution to the fertility of the land was recognised as being achieved through the Rain ceremony that used to be performed. The Rain ceremony was also recognised as contributing to the well-being of the community. Likewise, rituals performed by the royal family to appease and commemorate their ancestors are believed to contribute to the prosperity of the community and to ensure their spiritual presence in the forest. It was however emphasised that rituals and ceremonies for ancestors in the SFs can only be performed by royal family members and other members of the community who have their ancestors buried there. However, the FG and elderly participants stated that many of these ceremonies have not been observed since *Nkosi Justice's* reign (the current *Nkosi's*

father). There was a difference of opinion as to why such practices had stopped during *Nkosi* Justice's reign. Some of the elderly participants felt that he did not continue the traditional cultural practices regularly, they were not certain as to why. Others they felt that this was partly due to the increase in Christian values in the area that led to a decline in ancestral rituals and ceremonies performed in the SF. The neglect of such practices has worsened under the current *Nkosi* (*Nkosi* Khulezweni) who is regarded as being a staunch Christian.

In Mazizini, given the access restrictions to the *Hlathi lama Khosi* (the forest of the *amaKhosi*), the only benefit acknowledged as being derived from the SF was its use for ancestral rituals. The *asebaguqa* ritual (for those who have knelt) is the commemoration of the *amaKhosi* and is conducted exclusively by members of the royal family. All but one amaZizi elderly participant, *Nduna* Miya, who was interviewed were familiar with the *asebaguqa* ritual. The reasons given for the other elderly participants for not being aware of the ritual was because of the ritual no longer being practiced, the ritual being practiced when they were young and naive or that the ritual was exclusive to the royal family. Given the lack of knowledge about the ritual, it is not clear if it is still practiced, but the *Nduna* shared that the extent to which the *asebaguqa* ritual is upheld depends on the custodians of the forest and their dedication to the ancestral traditions.

Significantly more benefits were acknowledged as being derived from the culturally significant Ndlankomo forest, despite the forest being prohibited from use (Chapter 3). In addition to the numerous provisioning services, some of the FG participants mentioned that the Ndlankomo forest is used as a place to pray and for spiritual upliftment. The Ndlankomo forest was also acknowledged as providing traditional medicinal plants that are believed to offer protection from illnesses and misfortune. The collection of these medicines from the Ndlankomo forest is considered a valuable cultural service. Moreover, plants are used in customs and rituals performed to appease the ancestors. Beyond medicinal uses, the Ndlankomo forest offers cultural services through the spiritual importance of water sources such as the waterfall and stream which are considered powerful places for worship (Section 5.3.4). Participants also noted that the forest provides access to resources which contribute to community members' livelihoods, e.g., wood used to produce crafts or medicinal plants harvested for sale. Lastly, given the mountainous terrain of the area, the forest was also acknowledged for providing regulatory services. Particular mention was made of how the forest prevents soil erosion in the area.

5.3.2. Values associated with the sacred forests

5.3.2.1. Benefits derived from the sacred forests

The FG participants in Mabasa listed 17 different resources (Table 5.1). The amaZizi FG participants listed six resources (Table 5.2) that overlapped with the Mabasa FG participants. The Mabasa FG participants also listed the forest as offering a place to pray, collecting funeral wood, as well as offering opportunities for tourism. Fuelwood was also listed by the Mazizini community. It was later discovered that participants mainly harvested fuelwood from *Acacia mearnsii* trees that were found along the

Ndlankomo forest edges. Some of the *Acacia mearnsii* trees have invaded the Ndlankomo forest from the adjacent plantation (these were evident during the ecological field surveys, Sections 7.3.2 and 7.3.3.1). The elderly participants interviewed mentioned that the plantation was established by community members for the purpose of collecting fuelwood. However, in Mabasa fuelwood has been ranked lower due to its decreased usage (which will be further discussed in the next chapter). From Table 5.1, the following resources listed were considered the five most important benefits to the FG participants as per their weighted ranking: traditional medicine, building poles, community gardens, water and crafting material (Table 5.1). The benefits of traditional medicine and building poles were noted across all of the FG groups. The SF was listed as offering two cultural services (1) the site used for hosting sacred burials which was considered most important by only one of the 20 FG participants, and (2) used for hosting rituals done in the forest. Finally, plastering sand, grazing land, birds, game and spiritual upliftment benefits offered by the SF had the lowest weighted value (Table 5.1).

In Mazizini, the top five resources listed as per their weighted ranking included traditional medicine, fuelwood, building poles, crafting material and the forest being used to pray in (Table 5.2). All of these resources, except crafting material, were noted across all groups. Three cultural services were mentioned recorded as being offered by the SF, i.e., (1) the importance of the forest for spiritual upliftment and renewal, (2) the importance of being able to pray in the forest, and (3) being able to collect wood for funeral purposes, i.e., the practice of using wood or planks in graves to prevent sand from touching the deceased. Crafting materials and traditional medicine were valued to a high degree and associated with cultural values by the FG participants. Although crafting material and prayer are associated with cultural value and featured as part of the top five most important benefits, they were not ranked as most important across any of the groups. The benefits of harvesting wild fruits and access to cattle grazing were only noted in one group, of which wild fruits were ranked the least important (Table 5.2).

Table 5.1. Benefits ranked from most important to least important (i.e., rank one to five) by participants in Mabasa.

Listing and Ranking (Funjwa) forest benefits						
Benefits from nature	Rank					Weighted rank
	1	2	3	4	5	
Building poles	35	25	5	5	15	3.15
Traditional medicine	30	20	15	20	5	3.30
Community gardens	20	10	0	5	0	1.50
Water	5	10	20	0	0	1.25
Fencing poles	5	5	5	5	5	0.75
Sacred burial	5	0	0	0	0	0.25
Crafting wood	0	10	5	25	5	1.10
Thatching grass	0	10	0	20	5	0.85
Weaving grass	0	5	10	10	20	0.90
Fuelwood	0	5	10	0	10	0.60
Wild fruits	0	0	25	5	0	0.75
Honey	0	0	0	5	15	0.25
Game	0	0	5	0	0	0.05
Plastering soil	0	0	0	0	5	0.05
Grazing land	0	0	0	0	5	0.05
Therapy	0	0	0	0	5	0.05
Birds	0	0	0	0	5	0.05

Table 5.2. Benefits ranked from most important to least important (i.e., ranked one to five) by participants in Mazizini.

Listing and Ranking (Ndlankomo) forest benefits						
Benefits from nature	Rank					Weighted rank
	1	2	3	4	5	
Traditional medicine	65	0	15	15	0	4.00
Building wood	20	20	25	5	5	2.70
Fuelwood	15	65	10	0	5	3.70
Crafting wood	0	15	5	10	15	1.10
Prayer	0	0	15	20	25	1.10
Funeral wood	0	0	10	20	10	0.80
Tourism	0	0	10	0	10	0.40
Wild fruits	0	0	5	0	10	0.25
Grazing land	0	0	5	5	5	0.30
Fencing wood	0	0	0	25	15	0.65

5.3.2.2. Values derived from the ranked benefits associated with the sacred forest

The criteria used for the analysis of the FG participants' rankings in Tables 5.1 and 5.2 were developed after the participants ranked their lists of benefits. Initially, the FG participants in Mabasa and Mazizini

ranked the benefits based on their preferences and needs. Once these rankings were completed, the researcher analysed the reasons provided by the FG participants for their rankings. From these reasons, a set of criteria was developed. Some of the FG participants' reasons for their ranked lists of benefits are presented in Tables 5.3 and 5.4.

This set of criteria was then applied to assess how the participants valued the SFs and their associated benefits. It can be deduced that people value the forest in different ways based on their varying needs and preferences. The criteria developed were consistent for both Mabasa and Mazizini, except for the inclusion of leisure and safety-net benefits in Mazizini. Leisure was noted due to the increased tourism opportunities in Mazizini, while no tourism opportunities currently exist in Mabasa, following the closure of the game reserve there. The criteria developed for the FG participants' ranked lists of services and resources are defined here as:

- essential need- considered necessary for their survival or daily living
- basic need- fundamental for a basic standard of living, e.g., plastering soil for one's home
- healthcare- related to medical care or treatment
- life-supporting- crucial for sustaining life without human intervention
- livelihood- means of making a living
- cost-saving- benefits that lead to financial savings or help in reducing costs/expenses
- cultural- cultural traditional practices
- social- deals with aspects that affect society such as learning, etc.
- societal status- benefits that contribute to one's position within the community
- spiritual upliftment- enhancement of one's spiritual and mental well-being
- security- offers protection
- safety-net- offers security during times of unexpected distress or helps to manage risks
- convenience- benefits that make life easier often saving time or effort
- therapy- contributes to one's emotional and mental well-being

The participants' reasons for the ranked benefits revealed that they value resources differently (Table 5.3). For example, traditional medicine was considered a critical need by some as it was felt the use of traditional medicines contributed to the individual's survival. Others perceived the benefits of having access to traditional medicines as a culturally significant healthcare resource important for the community's health. Traditional medicine was also deemed important for the local economy and the community's cultural identity. Nevertheless, of the top five most valued benefits, only traditional medicine and crafting materials were regarded by some of the FG participants as highly significant and connected to cultural values. Traditional medicines, in particular, are deeply tied to cultural and spiritual practices, as they are not only used for healing but also play a vital role in rituals and communication with ancestors. Plants are also used to return a deceased person's soul to the

homestead. Carved wooden trays are used during ceremonies, when hosting guests and used to serve well-respected men from the community such as a *Nduna* (Table 5.3). The order in which benefits were ranked varied depending on the frequency of use. For example, the few FG participants who valued fuelwood more than building wood did so because fuelwood is used daily and is collected more frequently than building wood. Yet many participants mentioned that fuelwood is rarely used nowadays due to the introduction of electricity, and when fuelwood is needed, it is typically harvested from the surrounding bushes rather than the forest itself. The values derived from the ranked benefits for Mabasa primarily centred on benefits that contribute to one's safety, security, nutrition, wellness and physical health. This finding was across all the groups (Table 5.3). They explained that the forest supports their essential needs and provides them with resources to enhance their quality of life because the resources acquired from the forest meet their basic needs. The FG participants also emphasised the financial stability that the resources from the forest offered them. The participants explained that the forest provides them with the opportunity to access resources that contribute to their livelihoods as well as resources that help them cut costs and expenses. Moreover, some of the FG participants shared that money saved from harvesting resources from the forest allowed them to use their monies to buy other items such as food and medicines from local markets or shops. Cultural values were also recognised by three of the FG participants. One of the FG participants recognised the sacred burial sites as most important (Table 5.1). Only one participant mentioned the importance of the natural environment.

Of the top five highest-ranked benefits in Mazizini, 65% of the FG participants ranked traditional medicine as the most important. They considered it important for life as it maintains one's health, whilst some of these participants value traditional medicines for economic reasons. Traditional medicines were cheaper alternatives to Western medicines or that the harvesting of traditional medicines contributed to livelihoods of some members of the community. Building wood was valued as the most important by 20% of the participants. Most of the participants stated that it provides shelter and offers security from harsh conditions. One of the participants also mentioned that it helps to cut costs. Instead of buying building materials, one can harvest from the forest for free. None of the participants ranked crafting material and sites for praying in the forest as the most important, yet both these benefits featured within the top five highest weighted ranking. Only 15% of the participants ranked fuelwood as the most important resource to them. Fuelwood was valued because it is needed on a daily basis, used to cook food, used to provide heat during winter, and helped to cut down

Table 5.3. Value systems derived from the reasons for the Mabasa participants' ranked benefits.

Benefits from nature	Values			Participant reasons for ranking of benefits	Criteria
	Instrumental	Intrinsic	Relational		
Building poles	X		X	Can not live without a shelter..."Cant sleep under a tree" (Siphesihle). A home provides safety. Having a house ensures that respect is gained in the community. Provides protection from rain, cold and the heat. Not everyone can afford to buy building materials from the hardware, so it helps save money. Another participant uses this to make fences and windows.	Essential need, basic need, security, societal status, cost saving
Traditional medicine	X	X	X	When doctors and nurses are unable to help, medicinal herbs offer an alternative. Sickness hinders a person from actively engaging in other important life activities, therefore, medicine is important to maintain good health. Another participant mentoned that when she is sick she becomes "powerless"and has no energy to work, through medicines she is able to revert to her normal self. It is used to heal and cleanse oneself to have long life. It saves on hospital and clinic costs. Likewise, traditional healers mix herbs, which helps to save on hospital costs and sells mixed herbs to get money for school and food. The participant is more prone to sicknesses so she needs medicine, therefore, traditional medicine helps cut her costs. It is also convenient as it enables one to self-cure. Also, used to	Basic/essential need, health, livelihood, cost saving, cultural
Community gardens	X		X	Provides food for the family and it is form of livelihood. Some produce is also sold to make money.	Essential need, cost saving,
Water	X	X	X	It essential for life. Used to water gardens.	Essential need, life supporting, basic
Fencing poles	X		X	Prevents cows from entering yard and eating crops. Fencing protects grazing land, communal farms, gardens and homes. Also ensures people can not just enter into another person's premises. Fences also saves money as it helps to maintain crops to minimise grocery expenses. Fencing also works in relation to muthi which is linked to protection against witchcraft.	Cost saving, security, cultural
Sacred burial		X	X	For the <i>amaKhosi</i>	Cultural
Crafting wood	X		X	Wooden carved trays are used when hosting guests or during ceremonies. These are also used to serve food to well respected men of the community in one's home or during ceremonies. It was also one of the participant's parents livelihood. Another participants shared that crafts are made and sold to buy her childrens school uniform and pays for their tuition. Crafts are also used to crush medicines and food, and wooden carved trays used to eat food.	Livelihood, cultural, basic need, convenience
Thatching grass	X		X	One of the participants shared that it is important to have a roof over ones head especially during rainy days, which also helps during cold nights in winter. A thatched roof helps avoid sun burn and excessive heat, keeps the room cool. Another participant shared that if one does not have a roof then they face the risk of getting sick. Thatched roofs are considered culturally important because it is the only type of roof built onto the ancestral rondovals (homesteads).	Basic need, security, convenience, livelihood
Weaving grass	X		X	Sleeping mats made to sit and sleep on. Sells sleeping mats to make money, and gifted when people are getting married.	Essential/basic need, livelihood,
Fuelwood	X		X	Fuelwood is needed to cook. Fuelwood is also used to save money particularly when there are random price hikes in the costs of watts per rand. Fires are lit to keep the family warm and helps strenghten family bond when the family gathers around the fire. It also helps to keep warm during the cold winter days. Fuelwood is also used to boil medicines.	Basic need, convenience, conservation, cost saving
Wild fruits	X		X	Traditional porridge, amabele, made with monkey apple. Fruits provide rich in nutrients especially monkey apple.	Basic need, cultural, health
Honey	X			Livelihood to support family. Can be used to cure flu.	Livelihood, health
Game			X	Used for <i>muthi</i> for healing. Wildlife is also hunted which is an important part of the Zulu culture.	Cultural
Plastering soil	X			Helps to prevent cold from entering the room.	Basic need
Grazing land	X			Father has livestock which is also sometimes used to sell and pay for school fees or driving license.	Livelihood
Therapy		X	X	Calms the mind. It is restoring and therapeutic.	Therapy, spiritual upliftment
Birds		X	X	Therapeutic when birds sing and chirp, and in this way the forest also offers anger management.	Conservation

Table 5.4. Value systems derived from the reasons for the amaZizi participants' ranked benefits.

Culturally significant Ndlankomo forest ranked benefits: Dominant values					
Benefits from nature	Values			Participant reasons for ranking of benefits	Criteria
	Instrumental	Intrinsic	Relational		
Traditional medicine	X	X	X	Important for life- steaming and cleaning stomach. Health is very important so that one can be productive. "Traditional medicine is important because it maintains one's immunity, especially now during covid-19". Better to use herbal, indigenous medicines, rather than western medicines. It is also cheaper. Some people sell traditional medicine for a living. Traditional medicine provides an alternative instead of going to the clinic and is believed to heal a person faster than western medication. Songomas burn imphepho to bring their ancestors. Some <i>muthi</i> are used to communicate with ancestors to ask the ancestor to serve as a mediator between the user and God, and to help guide them when facing trails or when sick.	Basic/essential need, healthcare, livelihood, cost saving, convenience
Building wood	X		X	Building wood is not required all the time but it is important to have. It is just as important as fuelwood, despite not being used as often. It provides shelter. Provides shelter and security. Building wood are needed for the construction of rondavals. Many people from the community do not have money for building material because it is very expensive, so harvesting building poles help to cut costs.	Essential need, basic need, security, cost saving, cultural, convenience
Fuelwood	X		X	Fuelwood is used almost on a daily basis. It is what is needed to survive e.g., to cook food and keep the family warm. Used to cook food and to keep warm. It also helps to save on electricity which is very expensive. It is used for cooking beans, samp and dumplings to help cut electricity costs. It is also used for events such as weddings, funerals, etc. "Fuelwood is very useful during the times of load shedding or power cuts when needing to cook meals and it also helps to cut electricity costs". Fuelwood is used to cook for ceremonies and	Essential need, basic need, convenience, cost saving
Crafting wood	X		X	Livelihood to some people in the community , particularly by women in the community. Craft making is least important because not everyone does this type of work to make a living. Chairs, benches and trays (eqweqwe) are made for the home. It is cheaper than buying.	Livelihood, cultural, basic need, convenience
Prayer		X	X	"It helps to keep a person healthy", and helps a persons to heal spiritually. "Rain prayers' are important because we need fertile, moist soils to keep our plants, crops and livestock alive." In 2015 there was a bad drought which affected people and their livelihoods. Prayer is important to bring rain especially during the dry seasons, and rain prayers help other community members prayers get accepted. "Prayer is important as it is passed down from our parents". "Prayer and other cultural practices help to chase away evil spirits and prevent against witchcraft". "Prayer helps us to connect with our ancestors - provides a spiritual connection". "Prayer helps when people need assistance and guidance. Prayer to the ancestors to ask them to ask God for what you need and to inform the ancestors of what you are doing". "Songomas go into the forest to get medication and plants used to connect to our ancestors. Some songomas prefer to pray in the forest if something is going wrong in a person's life or if someone is ill".	Cultural, security, healthcare
Funeral wood		X	X	Used for burials- the wood is placed on top of the coffin to avoid sand falling onto the coffin as a sign of respect. "Funeral wood is more important than fencing wood, but not as important as fuelwood. It shows a level of respect for those we have lost".	Cultural
Tourism	X		X	Tourist guides earn an income. Tourism serves as a livelihood opportunity. Tourism offers an opportunity for research and learning.	Livelihood, research
Wild fruits	X		X	"Trees provide fruits which are helpful on the days when we collect firewood instead of carrying lunch".	Leisure, convenience
Grazing land	X		X	Cattle and goat grazing but there are many other areas for this. Cattle stay in the forest, some go to eat, to keep cool or to protect themselves from the rains and snow.	Basic need, convenience, security
Fencing wood	X			Provide security. Important to some people, especially those that have crops. Fencing is cheaper to get the resources from the forest.	Security, cost saving, basic

electricity costs. However, some participants pointed out that fuelwood is rarely harvested from the Nhlangkomo forest, but is primarily being harvested in the adjacent plantation, which is being extensively exploited for sale.

In Mazizini, the values derived were also mainly centred on the participants' physical well-being. These primarily focused on maintaining health (Table 5.4). This was followed by ensuring economic well-being, particularly for two of the groups. The participants' considerations for their economic well-being included their livelihoods, e.g., crafting and tourism, and the harvesting of resources that help to cut expenses such as building wood, fencing wood, crafting wood and traditional medicine. The FG participants noted resources that contributed to or benefited their physical and economic well-being. For example, the use of traditional medicine was perceived as contributing to their health, and also offered a cheaper alternative. Fuelwood was used to cook and it helped to reduce electricity costs. The FG participants valued resources that helped for cooking purposes to save time or effort. Resources harvested from the forest offer convenience to locals. For example, fuelwood was harvested from the forest during times of load shedding (scheduled power outage that is implemented by the electricity provider) and power cuts were also considered as offering convenience. Others acknowledged the benefits derived from resources as a safety-net (as defined in Section 1.5). For instance, sites used in the SF to offer rituals or ceremonies serve as a coping mechanism during difficult times, as they are believed to bring rain during drought periods. In this way rain ceremonies offer relief to the community. Likewise, traditional medicines were used during the COVID-19 pandemic either to be sold for income or healing purposes, which helped to sustain the community during the crisis. Only one group of the FG participants acknowledged the benefits that contributed to their cultural heritage, whilst only one or two participants from the other FG groups mentioned the importance of resources to certain aspects of their culture (some of these are reported in Table 5.4).

5.3.3. Relational values associated with the SF and its socio-cultural and ecological significance

In addition to understanding how values influenced forest use, different perceptions of the landscape were obtained through the oral history interviews as well as through the FG discussions. These included both individual perceptions and perceptions held at a community level. At the community level in Mabasa, FG participants described a “generational” bond formed between the royal family and the rest of the community, which transcended generations. This bond, formed over time, is based on the historical transmission of traditional cultural practices and beliefs that are passed down from the royals to the broader community. The bond fostered a shared understanding of the importance of cultural practices. One of the FG participants explained this bond as “what is important to the *Nkosi* is also important to the community” (Mbuso). The value attributed to the Funjwa forest at the community level can also be deduced from the responses received from the FG participants who declared that the community is committed to the conservation of the forest. The participants emphasized that the community, including themselves, would not trade the forest for financial gains, job opportunities or

other development initiatives that would compromise the forest condition and its cultural significance. Having the forest cleared for any other purpose, "...would be like selling ourselves" (Buthelezi). The FG participants explained that the community could not fail in their efforts to ensure the sustainability of the forest. This would ensure the security of their children and future generations as legacy gifts for posterity. Despite such sentiments, the participants felt that the removal of the forest for any development would depend on a "majority rule" basis. For example, if 80% of the community wanted the Funjwa forest to be removed, then it would be removed, if not then the forest will remain. One participant explained that such talks would depend on the terms and conditions, i.e., if future generations would benefit then it may be that the forest would be removed.

Participants explained that at an individual level, the relationships and values held for the Funjwa forest are defined by (stem from innate sustainable instincts) the teachings passed down through generations and the experiences with ancestors in the forest. As a result, the *sangoma* (spiritual healer) and the ward councillor stated that "people do not enter the forest unless there is a purpose" in fear of ancestral retribution. It is possible to perceive that a social force has been created to protect the sacred area of the Funjwa forest from the information gathered during the FG discussions and interviews with the local *sangoma*. This relates to the 'social fence' (considered the cultural delineation- see Figure 5.1) of the sacred area of the Funjwa forest that has been created through the presence of the ancestors. The social fence is associated with supernatural encounters and linked to the deeper connections and meanings that is attributed to the Funjwa forest spiritual and ancestral significance. The *sangoma* mentioned that the sacred significance of the Funjwa forest contributes to the protection and preservation of the forest. Following certain protocols and beliefs in ancestors has contributed to its protection.

Apart from the values derived from the ranked lists of benefits, the elderly participants from the community also shared how they value the forest. Many of the elderly participants shared experiences of how they had developed relationships with the SFs based on their personal experiences and interactions. In Mabasa these included a spiritual connection with the metaphysical nature of the forest or a materialistic connection, i.e., a connection based on the physical, economic or tangible benefits. Others valued the SF for its cultural significance (its heritage or traditions) or its natural beauty. All but one of the elderly participants, Mrs Nxumalo, claimed a spiritual connection to the Funjwa forest. Mrs Nxumalo explained how her mother had told her stories about the Funjwa forest which instilled respect for the forest within her. Her connection to the forest deepened after marrying into the Nxumalo family, who are related to the ancestors buried in the forest. The other elderly participants did not have any of their family members buried in the forest nor did they share the clan names of those buried in the forest. Although only one participant valued the forest on a spiritual level, many of the participants valued the forest for its role in their local cultural heritage and their cultural identity. The Funjwa forest was perceived as representing a part of their heritage because the founder of the Mabasa people is buried within it. Such a sentiment was expressed through the following example, Mr Zikhali felt personally connected to the forest and encouraged that it be respected because it is a central part of the community

heritage, whilst Mr Thwala shared that his connection with the forest was a result of his fondness and love for nature and this is why his home is situated close to the forest. He added that he did not have a spiritual connection to the Funjwa forest because he was not related to any of the ancestors buried there, i.e., the royal Nxumalo family. Mr Lugagu shared a more materialistic relationship with the forest. He used the forest to meet his basic needs and he makes an income from selling building poles that he harvests from the forest. Mr Njokweni valued the forest for its cultural and spiritual significance because he believes that the forest plays a protective role for the community. The forest aids in the protection from unfortunate events like diseases and injury. This is because when such events take place, rituals and ceremonies are meant to be performed in the forest to appease the ancestors who are present in the forest.

In contrast, the amaZizi FG participants described the Ndlankomo forest as being valued because it is understood as being "alive", i.e., it is believed to be imbued with spirits, and contains the biological existence of life. This instils a deep respect for the site at the community level. The forest is protected to honour and protect the forest. The *inyanga* explained that indigenous forests are considered God's place. However, many community members do not share this same understanding. This discrepancy in understanding he felt was evident in the community's negligent behaviour and unsustainable use of the Nhlankomo forest. He further added that due to the loss of respect for the Ndlankomo forest over the years, it has become a norm and socially acceptable for anyone to enter the forest without following the correct protocols. For example, most of the participants agreed that the majority of the community no longer seeks permission from the TA or the ancestors prior to entering and using the forest. Despite the majority of the community members not sharing the belief that the forest is God's place, all the FG participants, except for one, stated that the removal or loss of the Ndlankomo forest may lead to an "uproar" or protest action in the community. The participants explained that opposing the removal of the forest is reasonable because the removal of the forest for development may offer temporary benefits. They added that these short-term benefits would be at the expense of the irreversible damage to the forest. Participants also shared their concern about the loss of animal species and habitat if the forest was destroyed. Only one participant entertained the idea of the forest being removed to create job opportunities. Other participants responded by stating that the *Nkosi* would not allow the forest to be cleared and that the "constitution" of the traditional council had to be followed before such an initiative could be supported.

In addition, the FG participants shared personal accounts that have shaped the way they value the Ndlankomo forest. A few of the accounts shared reflected the importance of the forest because of the spiritual upliftment and ancestral connection the forest provides to the community. Some of the FG participants shared that the way in which they value the Ndlankomo forest has been deeply influenced by their ancestors. Their ancestors communicate with them through a *sangoma* who mediates on their behalf. Sometimes special requests are received. Requests made by ancestors have to be carried out together with the assistance of the *sangoma* who has initiated the conversation. Failure to carry out the

request received will not result in a positive relationship with one's ancestors being maintained. This will result in misfortune. For example, an ancestor could request a three-legged chair (*isigqiki*) or a wooden tray (*uqwembe*) to be made. The resources used to make these can only be obtained from the forest. Because of these requests made by the ancestors, the forest plays an important role in fulfilling spiritual obligations and maintaining relationships with one's ancestors. They added that it is for these reasons that a good relationship with the forest needs to be maintained. One of the participants explained the forest is a small piece of heaven (used for meditation and to connect to ancestors). The participant explained that due to the spiritual and cultural importance of the forest, it is believed to be the community's duty to respect and conserve their forest as practiced by their ancestors. Other FG participants claimed that they share a close relationship with the forest based on the work they do in the forest. For example, some locals are removing invasive alien plants in the forest and burning firebreaks. Other participants stated that they have acquired knowledge about the forest through external organisations (e.g., Wildlands Trust), as well as through their involvement with the local organisation, the Nhlankomo Monitoring Group (NMG), which manages the Nhlankomo Mountain. This information has shaped their relationship with the forest. Finally, FG participants shared that the trees in the forest fulfilled their basic needs. They value the forest for providing them with the ability to secure their health, needs and livelihoods. Whilst various accounts were shared about the Ndlankomo forest, participants were unable to share such accounts for the *Hlathi lama Khosi* because the area is restricted. No one is allowed to access the SF, except for royal family members. Likewise, the amaZizi elders were unable to express their relationship shared with the SF due to it being off limits as opposed to the elderly in Mabasa, but they valued the forest for being part of their cultural heritage as the amaZizi. In contrast to relationships and sentiments shared by elderly in Mabasa who value the forest as being a part of their heritage.

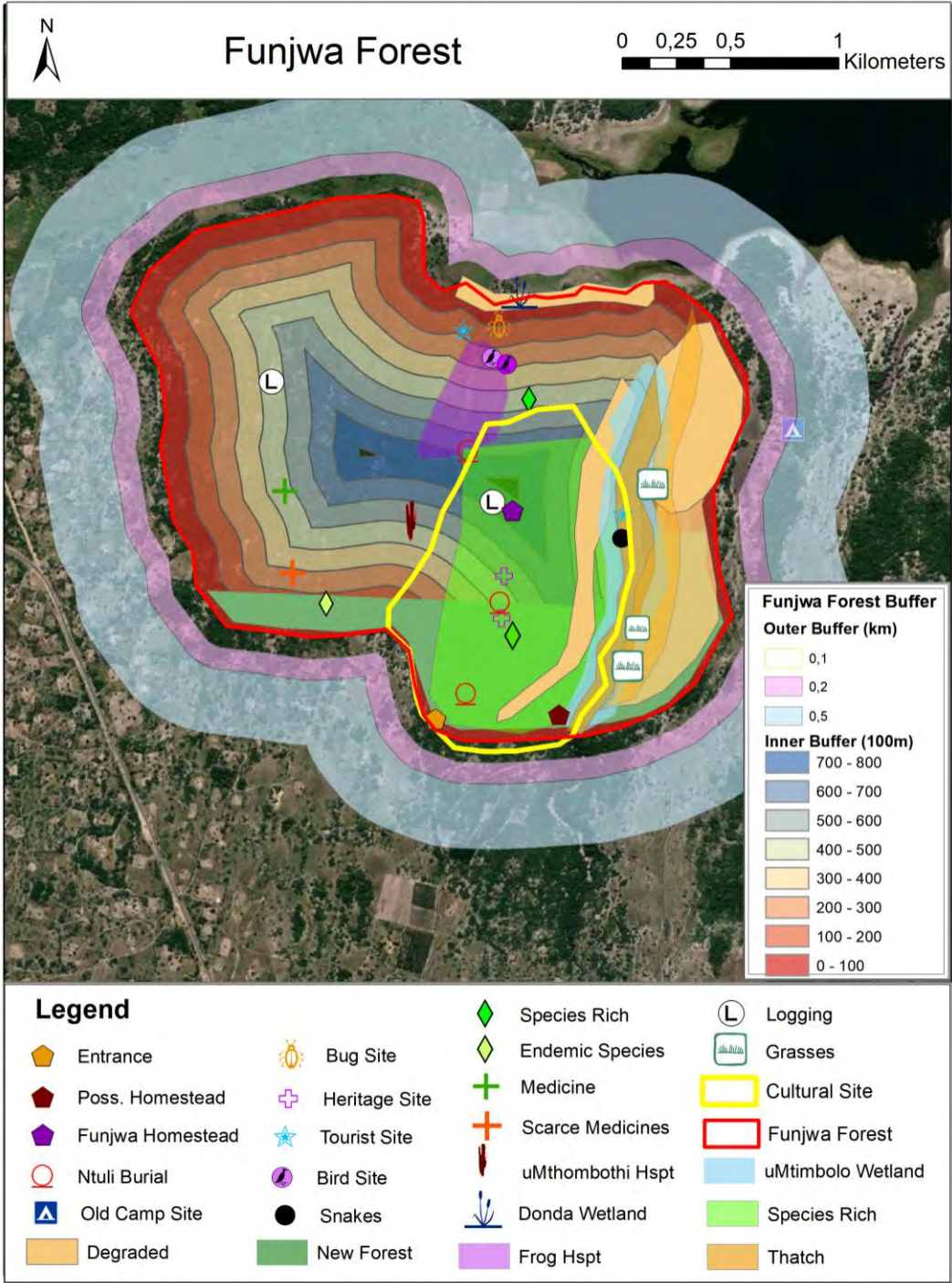
5.3.4. Understanding the significance of the SFs through spatial correlations of forest use zones

In both sites, socio-cultural and ecologically significant sites were mapped. The Mabasa and amaZizi participants identified only a few "use" sites (Figures 5.1 and 5.2). In Figure 5.1, the Mabasa participants felt it important to identify areas on the map within and outside the sacred area because use in the non-sacred area of the forest would impact the sacred area of the forest. Because there is no physical boundary delineating the sacred area of the Funjwa forest, a "cultural boundary" was developed during the participatory mapping. The cultural boundary is based on common (or overlapping) areas that were delineated by the focus groups, with the help of a representative from the traditional council who helped to finalise the boundary of the sacred area of the Funjwa forest. Figure 5.1 illustrates that cultural sites were mainly located in the sacred area of the forest. The kernel density map (Figure 5.1b) illustrates a hotspot for the culturally significant sites which coincides with the cultural boundary.

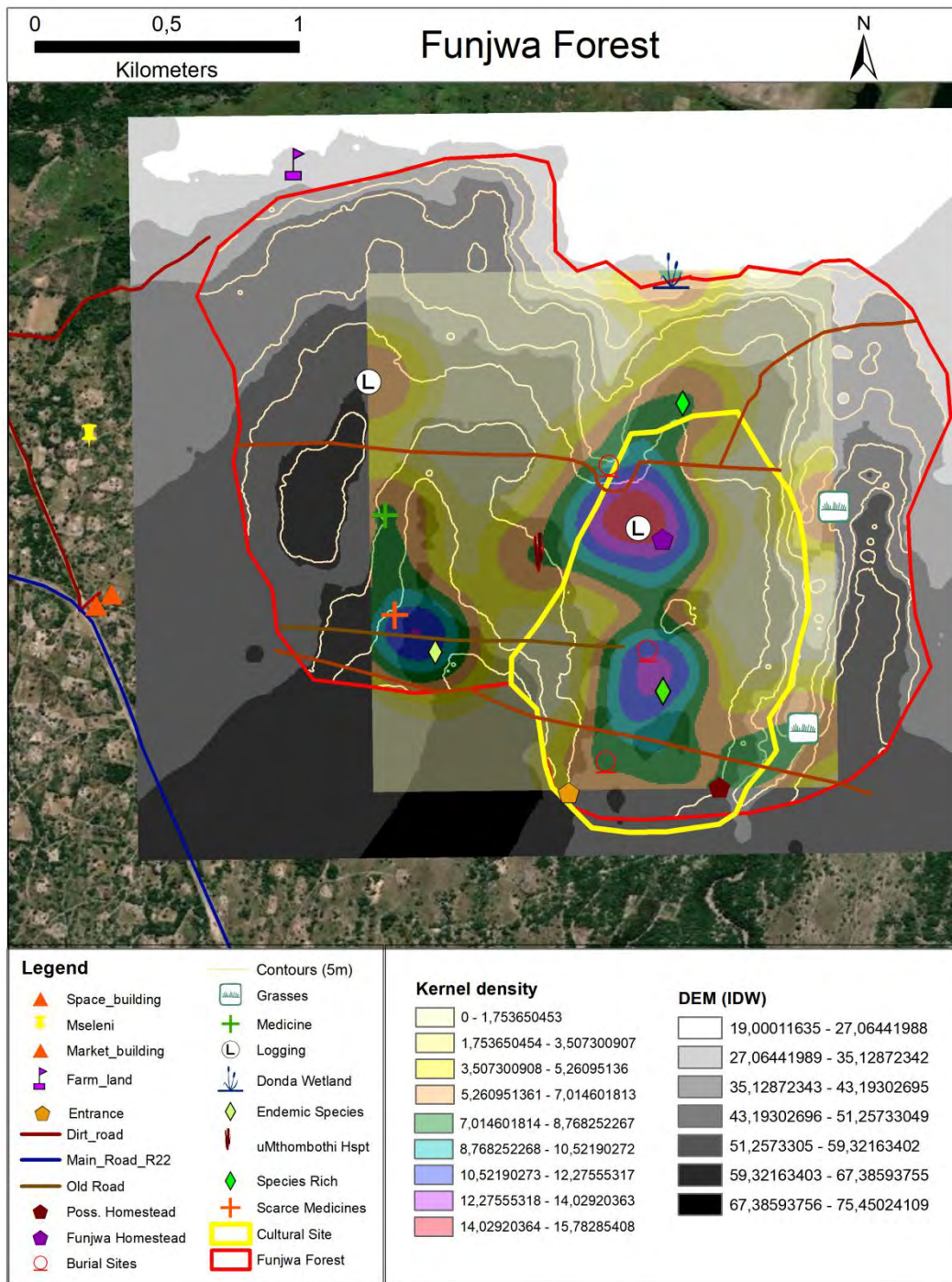
The species-rich zone also overlapped with almost the entire area of the sacred area of the forest. The *untimbolo* wetland (partially located within the sacred area) is considered a user hotspot for thatching grass surrounding the wetland. A degraded area surrounded this wetland which primarily fell outside

the sacred area of the forest. The degraded area also coincided with the forest edge as illustrated with the proximity-related map (Figure 5.1a), which considers the geographic distance between features by identifying features that are closest to one another and calculating the distances between these related features. The proximity-related map revealed logging and medicinal plant use sites were located along the forest edge. All three of these use points were also located outside the sacred area, besides one logging point. The logging point inside the sacred area of the forest is located deep inside the Funjwa forest (as per the proximity map) which was found close to one of the significant cultural sites (Funjwa's homestead mapped closest to the core area of the Funjwa forest patch). This logging site in the sacred area of the forest is probably due to the dirt road and flatter area illustrated in the Kernel density map overlaid with a digital elevation model (Figure 5.2b) (Section 2.4.3.3). Additionally, it was understood that through the participatory mapping exercise that there are no specific areas to conduct rituals or used as prayer sites in the SF. Such sites depend on which part of the forest an individual chooses. Some locals opt to use the forested area outside the sacred "boundary", while others prefer to conduct cleansing rituals in the sacred area of the forest. Preference of the latter was based more on the seclusion and privacy of the sites in the SF, rather than its sacred significance.

Lastly, participants located several potential tourist sites, some of which surround the culturally significant sites. Other potential tourist sites include sites around the *Donda* wetland, which has dried up over the years and is located in the northern area of the forest. These sites were considered possibilities for hikers and nature-lovers to use.



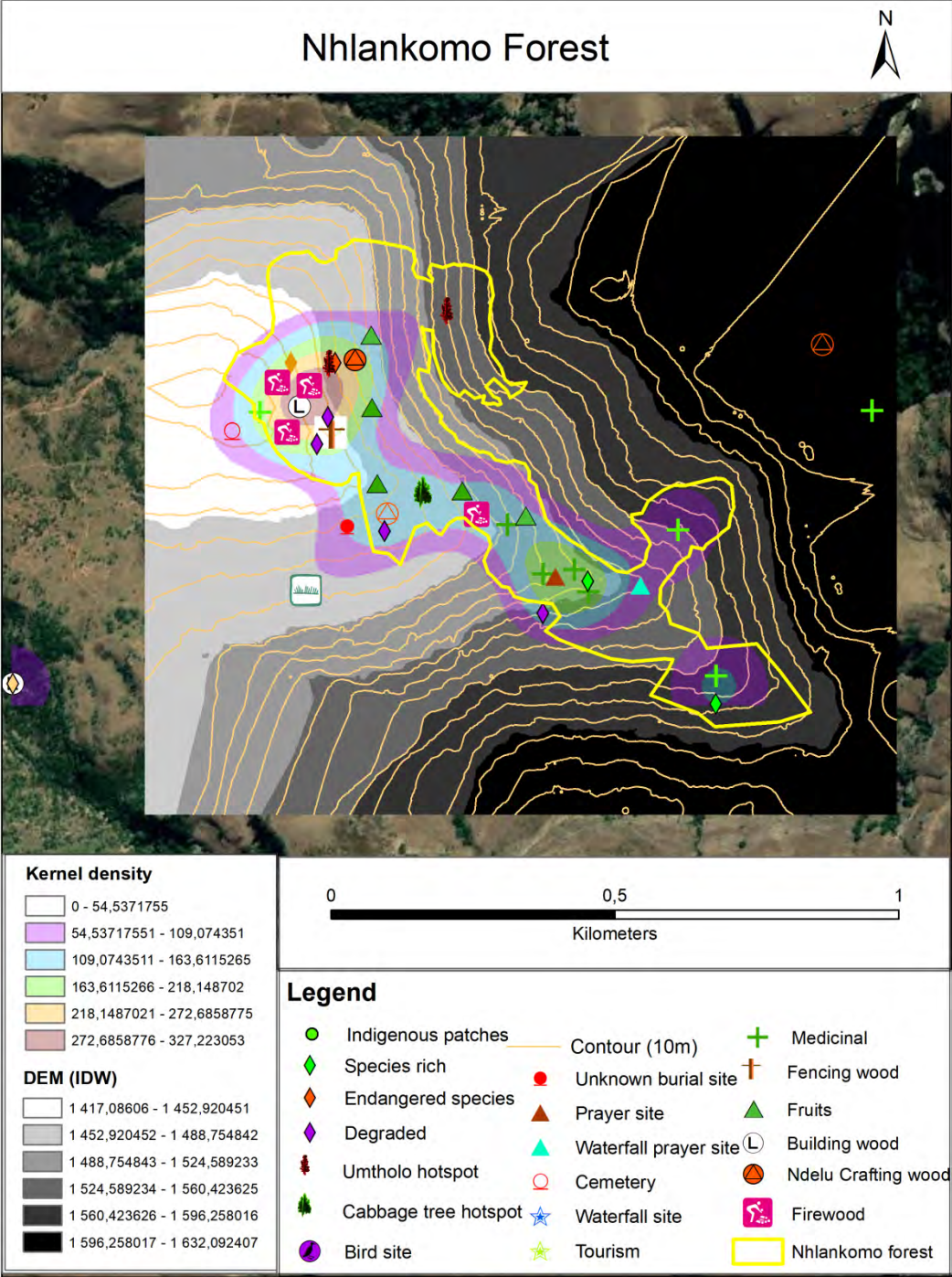
(a)

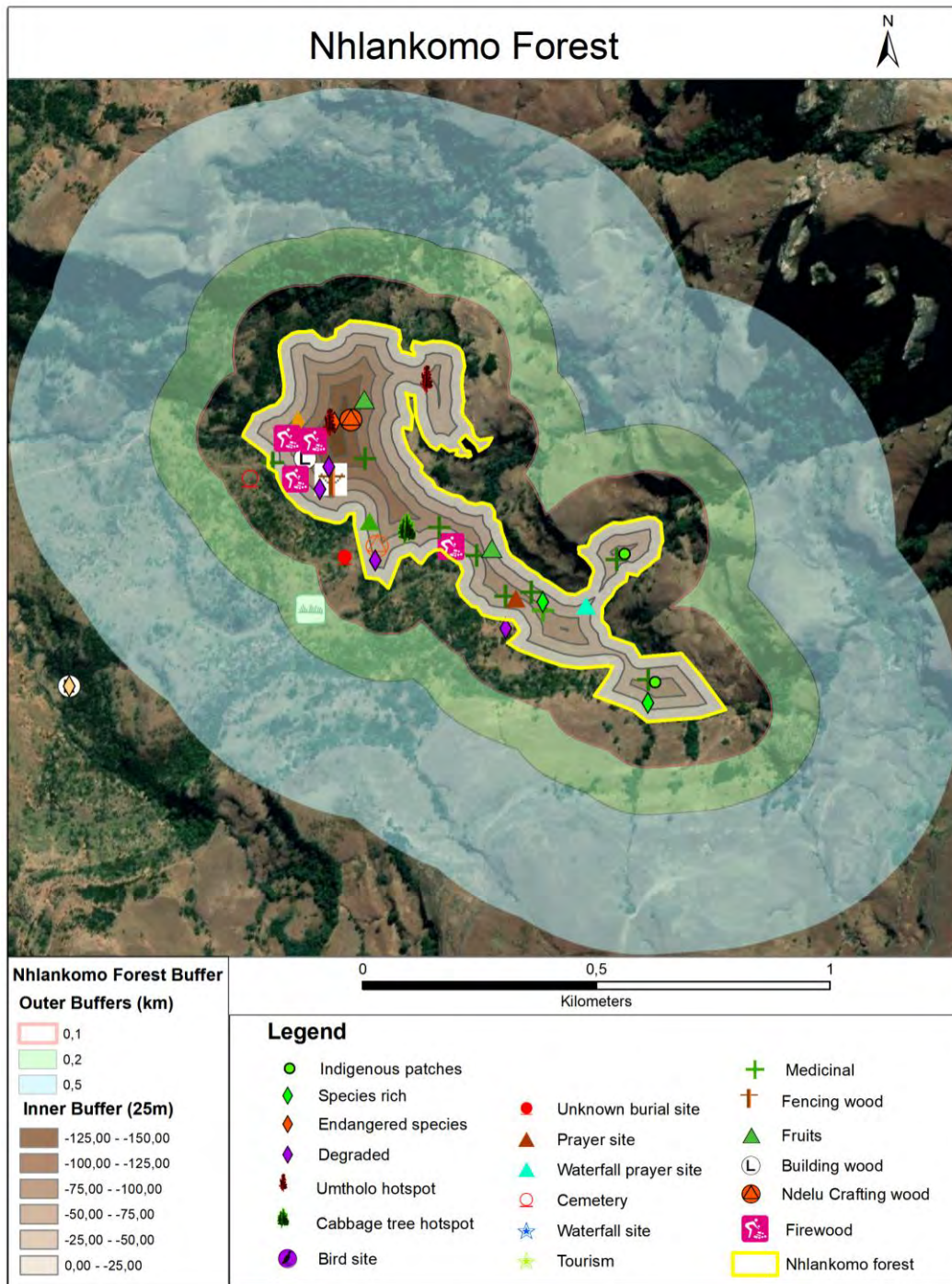


(b)

Figure 5.1. Use zones for the Funjwa forest in Mabasa, (a) proximity related map and (b) elevation map.

The amaZizi participants mapped several use sites in the Ndlankomo forest for gathering medicinal plants, building materials and wild fruits (Figure 5.2). The eastern area of the forest borders a plantation of exotic *Acacia mearnsii* (*umtholo*), mapped closest toward the edge of the forest, from which community members collect fuelwood (Figure 5.2).





(b)

Figure 5.2. Use zones for the Ndlankomo forest in Mazizini, (a) proximity related map and (b) elevation map.

The proximity-related map (Figure 5.2a) for Mazizini illustrates that the majority of harvesting activities occur within the 0 to 75 m range, which represents the outermost sections of the inner buffers. This aligns with Figure 5.2b wherein as elevation increases, forest use decreases. The proximity-related map also illustrates that the degraded areas of the forest were located along the forest edge with more gentle sloping areas. The proximity-related map illustrates that a cabbage tree (*Cussonia spicata*) hotspot was located closer to the edge of the indigenous forest. *Cussonia spicata* are used to make crafts because the wood is relatively soft and easier to work with. A second hotspot, for collecting medicinal plant species,

was located further south situated close to the forest edge. Other species-rich areas that were said to have a variety of medicinal plants were located in the 'forest pockets'. However, due to the distance and steep gradient, only a few community members harvest in these areas. The elevation map also shows that species-rich areas often coincide with the areas containing various medicinal plants. Culturally significant sites such as the waterfall, were located deep within the forest, thereby substantiating claims made that the forest offers remote and secluded places for worship. Prayer sites located by the waterfall, were also a few kilometres away from where the medicinal sites were located. Lastly, tourism potential sites were identified as overlapping with those of culturally significant sites such as the waterfall. Moreover, the forest as a whole was identified for its tourism potential given its natural beauty.

5.3.5. The change in reverence and governance

Because the *Hlathi lama Khosi* is completely off-limits to the locals, participants undertook the trend analysis for the Nhlankomo forest instead. Despite access to the Ndlankomo forest being restricted, locals still make use of it (Section 5.3.1). The trend analysis set out to determine if there have been any changes in the way the forests have been managed and respected. Even though the amaZizi ward councillor stated that traditional laws have weakened (Chapter 4), he claimed that the TA engages and employs necessary means to preserve the sacred Ndlankomo mountain and all the indigenous forest patches on this mountain. This is achieved by the TA playing an active role in restricting access and making it mandatory for permission to be required from the TA before entering the forest. The *Nduna* stated that the land of Mazizini belongs to the *Nkosi*, therefore people are expected to ask him for his permission. He explained that in this way the *Nkosi* can control use and this practice helps to ensure that area is maintained. It is also the community's responsibility to ensure members of the community abide by the rules and regulations of the TA. However, the FG participants revealed that the community is not actively playing their part because permission from the TA is not regularly adhered to, even though the *Nkosi* has "spies" to help monitor and ensure that these rules and regulations are followed. The FG participants raised concerns about how the effectiveness of TA management has reduced over time (Table 5.5). The reduced oversight by the TA is also evident in their lack of awareness and ability to deal with the effects of soil erosion and the increase of invasive alien species within the forest. In Mabasa, the FG participants raised concerns about the number of outsiders harvesting resources in the forest. The participants stated that outsiders lack respect for the forest as they harvest unsustainably. Local authorities from the surrounding communities discourage their community members from using sites in other communities. The ward councillor stated that the TA in Mabasa is also required to inform outsiders that extensive harvesting in the Funjwa forest is prohibited and that the sacred area is prohibited from use.

Table 5.5. Perceptions of changes in rules and respect for each period.

Study site	Mabasa				Mazizini			
	Increase	Decrease	Unchanged	Absent	Increase	Decrease	Unchanged	Absent
Forest use								
First year period	2000-2010				2000-2010			
Types of rules, norms, behaviours	70	0	30	0	35	35	30	0
Respect of rules, norms, beliefs	65	5	30	0	30	25	45	0
Second year period	2011-2020				2011-2020			
Types of rules, norms, behaviours	0	65	25	10	5	65	30	0
Respect of rules, norms, beliefs	0	70	30	0	5	50	45	0

The trend analysis for Mazizini revealed that half of the FG participants felt that adherence to traditional rules had increased during the first period (2000-2010), whilst the other half claimed adherence had decreased for the same period (Table 5.5). Participants mentioned that the former was a result of the *Nduna* who regulated forest use. For example, the *Nduna* would inform the community about which forest patch and which section of the forest could be used. Whilst the reasons for the decrease in adherence during the first period was a result of the loss of forest guards protecting the forest. For the second period (2011-2020) (Table 5.5), the majority of the participants mentioned that the number of rules had decreased because past laws were no longer implemented. The elderly participants also noted that although there has been a decline in the management of the Ndlankomo forest, fines were still being issued and some locals faced similar consequences like those in the past. Unfortunately, over the years it has become a norm and socially acceptable for everyone to enter the forest without following the correct protocols, i.e., to seek permission from TA and the ancestors. The elderly noted that the lack of forest management is evident in the condition of the Ndlankomo forest. Additionally, the reduced oversight by the TA was evident during *Nduna* Malinga's interview, given his lack of awareness regarding the challenges and threats the Ndlankomo forest is facing, such as soil erosion and invasive alien species.

In terms of respect regarding local beliefs and traditional laws, the majority of the amaZizi FG participants stated that respect had stayed the same during the first period but had decreased during the second period. Similarly, the local *inyanga* (a herbalist) felt that respect for the forest and regulations surrounding the forest had reduced (1) because of the increase in the number of people using the forest for medicinal purposes, (2) evident in the community's negligent behaviour and unsustainable use of the forest, (3) decrease in cultural traditions and understanding of local beliefs over the years (Chapter 4). The *inyanga* added that people have lost respect for the forest because many community members do not share the belief that the forest is considered God's place. The *inyanga*'s views were contradicted by the *Nduna* who stated that locals are respectful of customary practices and laws because they abide by the rules set out by the traditional council.

The majority of the FG participants in Mabasa felt that the rules of use, access and respect regarding the SF over the two periods had both increased and decreased (Table 5.5), respectively. The participants attributed these trends to the impact of the game reserve and its ultimate closure. For example,

participants mentioned that the creation of the game reserve in the early 2000s had resulted in restricting access and use. The game reserve was short-lived which negatively impacted the rules and the level of access to the Funjwa forest (no licence or permit is required). Hence, the majority expressed that the level of respect for the forest decreased during this time. They explained that people do not feel the need to respect the forest and that this is evident in how the forest is being misused. An elderly participant who was interviewed also attributed the negligent use of the Funjwa forest to a loss of respect because of the lack of awareness of the sacred significance of the forest. Unsustainable use of the forest has been exacerbated by locals and outsiders not being informed about forest customs. Mrs Nxumalo expressed concern about passersby who openly disregard warnings, for example, they hear “voices” whilst in the forest but make fun of this, instead of being humble and respectful. The youth are believed to be the ones not following local customs, either due to ignorance or a lack of concern. More elderly participants such as, Mr Thwala, grew up knowing that he should respect the forest. He further noted that during *Nkosi Bhukwane’s* reign, people respected the forest much more (Chapter 4). The deterioration in respect began during *Nkosi Justice’s* reign (Chapter 4), which prompted the *Nkosi* to remind people of the importance of sustainable forest use.

5.3.6. Conservation efforts and concerns

In Mabasa, the ward councillor explained that local communities are proactive in their attempts to conserve and respect nature, which has been passed down from generation to generation. One of the FG participant’s, Kwanele, stated that “historically we (Zulus) are a conserving nation” and explained that “Zulu traditions reflect that Zulu people are not above or aside from nature but are part of nature”. He provided an example that all parts of an animal, such as the hides and bones of a cow, are used. While this example does not relate to formal conservation efforts, it emphasised the importance of respect for nature and sustainability, relating to practices that avoid waste. These practices reflect sustainability, in which Zulu traditions are embedded in a symbiotic relationship with nature. However, traditional ecological knowledge (TEK) (Section 5.3.6) of these communities guide practices that contribute to preserving biodiversity, protecting endangered species or conserving ecosystems, such as rotational grazing, selective harvesting or planting indigenous species. The *Nduna* in Mabasa stated that it is imperative to conserve the Funjwa forest as it contains important burial sites. Similarly, Mrs Nxumalo suggested that the traditional council should monitor forest use and regulate how close people can build to the forest because community members are no longer respecting the forest. Despite these sentiments, no conservation efforts have been undertaken.

In contrast, conservation efforts are undertaken in Mazizini in relation to the Nhankomo forest. The NMG organisation is working with external organisations to create firebreaks and clear invasive alien plants, particularly along streams and rivers. The amaZizi community members, who work with and acquire knowledge from external and local organisations that work towards conserving the Ndlankomo forest, have also shaped their relationship with the forest and influenced how they value it (Section

5.3.3). Moreover, a few of the FG participants mentioned that educational community workshops are being hosted. These are perceived as assisting in efforts to protect animals and control excessive harvesting in the forest and the broader area. The *inyanga*, also shared that traditional healers in the area were invited to attend a workshop that was being run by a local organisation. They were required to identify medicinal plants that have disappeared as well as ones that are becoming difficult to access. Attempts were made to start a nursery to grow species that were of concern, including the reintroducing of medicinal plant species. Unfortunately, the nursery was not established due to a lack of funds. The local *izinyanga* shared that some community members had started to plant medicinal plant species that they needed.

5.3.7. Indigenous knowledge practices

Despite the changes in reverence for the SFs in both communities and the challenges that remain in fully protecting them, there are several sustainable harvesting techniques known and practiced by the local communities. In Mabasa locals generally refrain from digging around the roots of plants to avoid damaging them. New growths are generally left untouched to allow them to mature into full-grown trees, and trees are also cut just above the area where new growths emerge to allow for regrowth. When leaves are needed, only a portion is harvested. Additionally, a bush knife or *panga* (machete) is used to harvest instead of a hoe, which minimises damage. Moreover, when roots are required, only a portion is removed, which allows the trees to recover. Plants with taproots are not cut or removed. These practices reflect the community's efforts to harvest resources sustainably and ensure the long-term health of the SFs. Likewise, the community of Mazizini mentioned several sustainable practices. Like Mabasa, the amaZizi locals avoid removing the entire root. They also practice pruning, collect deadwood, remove smaller pieces of bark and are discouraged from hunting animals during the mating season and gestation period.

In both communities, the participants mentioned that most people and the traditional healers in the community prefer to harvest mature trees because it is more sustainable to remove mature plants than premature plants. However, older and bigger trees are preferred because they are used for many different purposes. For example, branches are used for fencing, their bark and roots are used for medicinal purposes, etc. In Mazizini, the participants also shared that certain restrictions based on TEK exist to protect the local vegetation. These include the prohibition of burning of fires out of the burning season, cutting of grass outside permitted zones and grass that is not dry. Unfortunately, challenges around protecting the local vegetation have been hampered by locals stealing fences, starting fires outside of the burning season (or without permission), leaving cattle unattended, and stealing stones from the soil erosion control walls. These challenges suggest a gap between the ideal sustainable practices and the reality of enforcement. Focus group participants as well as the elderly participants, have also reported that forest users do not fully practice their TEK, and some have noted that outsiders are unsustainably using the forest. This issue will be further explored in Chapter 6.

5.4. Discussion

5.4.1. Ecosystem services of sacred forests

5.4.1.1. The influences of cultural significance on access to provisioning services

Sacred forests contribute to the basic needs of local communities thereby contributing to local livelihoods (Udeagha *et al.*, 2013; Mahaseth *et al.*, 2023), through a range of ES (Lawes *et al.*, 2007; Oviedo *et al.*, 2007). Although the sacred area of the Funjwa forest is supposedly restricted from use, it is still in use as participants informed us in the FG workshop. Oviedo *et al.* (2007) in a worldwide comparison of SFs, similarly, observe that it is misleading to assume a complete ban on resource use in the SF. In contrast, amaZizi commoners are not allowed the same privileges, as they are prohibited from entering both the SF as well as the culturally significant Nhlankomo forest. Despite access to the Ndlankomo forest being restricted, some locals still use the forest to meet their basic needs and support their livelihoods.

5.4.1.2. Cultural services: the importance of maintaining cultural practices

Similar to the Venda SF in Limpopo province, South Africa (Sinthumule, 2022), the royal families in the Mabasa and Mazizini communities are responsible for conducting rituals and ceremonies in the SF to advance the well-being of locals and the physical landscape through revering their ancestors. In Mabasa, only the royal family is meant to conduct commemoration rituals for the ancestors at the burial site of *Nkosi* Funjwa. However, this ceremony is no longer being upheld by the royal family due to the *Nkosi* and his family's change in religious belief (Chapter 4). Consequently, the current *Nkosi*, *Nkosi* Khulezweni's, neglect of ceremonies, which is believed to be necessary to maintain spiritual governance, has weakened the spiritual potency of the Funjwa forest. This may explain the reduced presence of ancestors as spiritual 'governors'. A similar example has been recorded amongst a Venda community in the Vhembe district, South Africa, where the presence of ancestors in the SF is believed to have deteriorated over the years (Sinthumule, 2022). In contrast, other communities, like the Asanting Ibiono community of Akwa Ibom State, Nigeria, have continued with such ceremonies (Udeagha *et al.*, 2013). The Asanting community still uses their forest to conduct various ceremonies to invoke the spirit of the Ekpe as they still adhere to traditional practices and beliefs (Udeagha *et al.*, 2013).

In the past the Rain ceremony was also conducted in Mabasa to contribute to the fertility of the land and served as a means to protect the community from social ills, but it is no longer being performed by the *Nkosi*. The role of ceremonies contributing to the fertility of the land coincides with Byers *et al.*'s. (2001) observation that the ancestral spirits of SNS bring forth tangible benefits such as rainfall. In this way, the spiritual significance of SFs is associated with life-sustaining abilities and the well-being of the community through land fertility and the collection of medicinal plants.

In Mazizini, the amaZizi SF is exclusively reserved for the royal family and only they have the right to conduct ancestral rituals and engage in other cultural practices in the forest. Information being shared

about the *asebanguqa* ritual by only the *Nduna* highlights its exclusivity and also illustrates the difference in knowledge possibly due to his status and closeness to the *Nkosi*. The latter suggests a hierarchical nature of knowledge particularly surrounding the SF. Given the lack of knowledge about the ritual and the ritual's continuation being dependent on the royal family's dedication to ancestral traditions, it is unclear if it is still practiced. Nevertheless, the *asebanguqa* (ancestral commemoration) allows the physical and spiritual world to merge and it is crucial in maintaining the power and potency of the SNS (Sinthumule, 2022). On the other hand, the Ndlankomo forest is used by non-royal community members to gain spiritual upliftment and is also associated with strong cultural values which encompass traditions and beliefs that fulfil people's needs and include their connection to nature in meaningful ways (Verschuuren, 2007).

In addition, the forest offers various opportunities of obtaining spiritual healing or upliftment, with certain medicinal plants used to aid in this process. These plants are believed to possess healing properties, playing a crucial role in maintaining health and well-being. These plants are integral not only to physical health but also to spiritual protection, with certain species used to ward off evil, protect against misfortune, and strengthen individuals' connection to ancestral spirits. This mirrors practices in other indigenous groups, such as the Winti cultural traditions (van Andel, 2012), where plants hold both medicinal and spiritual significance. Medicinal plants play a critical role within cultural practices, reflecting the deep biocultural connections embedded in the SFs in both communities. In the Ndlankomo forest, for example, medicinal plants are not only harvested for their healing properties but are also central to rituals performed to appease ancestors and maintain spiritual well-being. Both sacred Funjwa forest and the Nhlankomo forest were acknowledged as repositories of traditional medicinal plants, and their collection is considered a valuable cultural service. The amaZizi participants identified several hotspots within the forest, where a variety of medicinal plant species are gathered despite challenges such as steep gradients and accessibility issues. Finally, both forests were acknowledged for being used by community members to pray in and connect with the ancestors.

5.4.1.3. The role of regulatory and supporting services in sacred forests

Given the variety of ES that SFs provide (Abram *et al.*, 2013; Delgado-Aguilar *et al.*, 2019), some ES contribute to the protection and conservation of the site. In the case of the Ndlankomo forest, regulating ES plays an important role in preventing soil erosion due to its mountainous terrain. Although regulating ES were not the primary focus of the community narratives, their ecological functions are implicitly supported by the sacred status of the forest, which discourages deforestation and degradation. Sacred forests also provide supporting services such as the production of oxygen and rainfall valued by both communities (López-Marrero and Hermansen-Báez, 2011). Rainfall, in particular, was noted as a dual service because of its cultural significance that is associated with the SFs in overcoming drought conditions. For example, in Mazizini, the SF's role in rainfall generation is recognised both ecologically and culturally, with rituals performed to invoke rain. This highlights the dual nature of this service, even though supporting services may not be overtly acknowledged by the communities. The decline in

traditional practices, as observed in some amaZizi rituals, may threaten these underlying supporting services, reinforcing the need to integrate both ecological and cultural perspectives in conservation strategies (Mathez-Stiefel *et al.*, 2007; Gavin *et al.*, 2018).

The limited mention of regulating and supporting ES in this study aligns with trends observed López-Marrero and Hermansen-Báez's (2011) study, where stakeholders often overlook regulating and supporting services unless explicitly discussed. Similarly, López-Marrero and Hermansen-Báez (2011) study which used participatory listing to identify stakeholder knowledge and perceptions about ES provided by El Yunque, the FG participants in this study prioritised provisioning services that people consume or utilise daily. Regulating and supporting ecosystem services, such as carbon sequestration, soil erosion control, nutrient cycling, etc., are often prioritised by scientists and forest managers. This may explain why these services were barely acknowledgement by community members in this study and in López-Marrero and Hermansen-Báez's (2011) study.

The limited acknowledgment of these services by the FG participants could also reflect a broader trend in participatory mapping that tends to emphasise provisioning services, which are more directly tied to daily livelihoods. Likewise, Delgado-Aguilar *et al.* (2019) used participatory mapping to quantify demand based on consumption and economic use, such as domestic consumption or tourism. This likely contributed to the minimal attention given to regulating and supporting ES, such as carbon sequestration, soil erosion control, and nutrient cycling. However, this pattern reflects a broader trend in participatory research and underscores the importance of integrating ecological and cultural perspectives in conservation strategies. By explicitly recognising and discussing these, the broader ecological functions of SFs that often go unrecognised in community discourse, can be more effectively incorporated into conservation and management frameworks.

5.4.2. Biocultural associations and consequent values attached to the sacred forests

5.4.2.1. Value systems based on ranked benefits

The FG participants ranked the benefits based on what they considered essential (Schreckenber *et al.*, 2016). Local perceptions, opinions and values attached to the SF were also taken into consideration (López-Marrero and Hermansen-Báez, 2011). Benefits were ranked based on either the resource's intrinsic value (characteristics of the resource independent of personal opinions or perceptions) or extrinsic qualities (subjectively measurable values based on one's cultural perceptions, experiences, or beliefs) (Verschuuren, 2007). For both communities, the forests were primarily valued for supporting local livelihoods, the communities' needs and health. In Mazizini, some resources were noted for their dual contribution, for example, resources contributed to their basic needs or health, whilst contributing to financial stability. The importance of some resources was linked to their ability to serve as a safety-net. For example, certain resources assisted the amaZizi to cope with the shock experienced during the Covid-19 pandemic. In Mazizini, there was an increase in the use of NTFPs, particularly medicinal plants during this period. Likewise, Paumgarten (2007) has acknowledged that natural resource use can

serve as safety-net. For example, they have been used to overcome illnesses, natural disasters and death, via either sale or household consumption. Bhatt *et al.* (2024) found that the perceptions and valuation of ES were influenced by awareness, resource availability, usage and inherent knowledge. The valuation of ES in the communities of Mabasa and Mazizini were also influenced by the frequency of use. In Mabasa, fuelwood use is relatively low as it is not frequently needed, whereas in Mazizini, some locals still rely on fuelwood to reduce costs, valuing it more and using it more often than building wood.

In terms of cultural values from the top five ranked resources, only traditional medicine and crafting materials were recognised for its cultural value. Sites within the SFs that were used for prayer were strongly tied to cultural and spiritual traditions. This was included in the top five most valued benefits by the Mazizini community. The values derived from the ranked benefits in Mazizini displayed greater cultural significance than for those derived from Mabasa. However, the forest and the resources they offered were not typically valued for their contribution to the local cultural heritage. As a result, the values inferred from the participants ranked benefits in both communities coincide with the biocultural disassociations revealed in Chapter 4. This finding contrasts with those from the Western Himalayan region, Uttarakhand, India (Bhatt *et al.*, 2024). In this region, communities' members prioritised their cultural ecosystem services due to the importance given to their local culture and spiritual awareness (Bhatt *et al.*, 2024). In both communities, particularly in Mabasa, the local culture was not prioritised and did not influence the ranking of ES provided by the SF.

The ranking of benefits also revealed that, although cultural, ancestral and spiritual manifestations in the Ndlankomo forest were not as prevalent as in the Funjwa forest in Mabasa, there were more benefits in the Ndlankomo forest that the FG participants associated with cultural values. This difference may also be attributed to the site not only being associated with the historical sacred significance but also being located on a mountain and containing water sources that are believed to be culturally significant. Like other traditional communities, numerous landforms, including some islands, water bodies, rocks, mountains and caves, have a cultural dimension and are in some instances, regarded as sacred sites (Kiernan, 2014). In Mazizini, the mountains and the various water bodies such as the waterfall, streams and rivers have religious associations. Likewise, Kiernan (2014) found that in many faiths and traditional communities, such as the ancient Greeks and in most Chinese belief systems, mountains were seen as places of sanctuary or stability or considered eternal. In some instances, they were believed to provide sacred links to heaven, which coincides in some ways to the belief of the amaZizi that the mountains are the closest place to God (Chapter 3).

In Mabasa, the absence of benefits that were regarded as highly significant and associated with cultural values may be attributed to shifts in belief systems and the weakening of biocultural relationships with the forest. This includes a decline in leadership from the *Nkosi*, who is traditionally responsible for hosting cultural practices such as rituals and ceremonies in the SF. This decline is reflected in the changing patterns of forest use, which will be explored further in Chapter 6. In addition to evolving cultural values, socio-economic changes (examined in the next chapter) appear to have altered how the

forest is used and how it is valued. This highlighting the feedback loop between cultural and socio-economic dynamics in these social-ecological relationships. Roux *et al.*, (2022) also found that as a society's perception of forests changes, so too do its actions toward them. Shifts in the way people engage with it, influences and transforms societal values regarding forests (Roux *et al.*, 2022), creating a feedback loop where each aspect continuously influences the other. Likewise, in the Mazizini community, the lack of recognition of benefits that contributes to their cultural heritage or resources used for specific aspects of cultural practices, suggests how the changes discussed in Chapter 4 may be undermining the way the forest is spiritually valued. Therefore, an increased understanding of human–nature relations, in terms of how individuals and their communities relate to forests, provides insight into how these forests are valued. Yuliani *et al.* (2023) found that formalising forest management shifted responsibility from traditional institutions to formal and state institutions, undermining the spiritual connectedness to the forest. Likewise, the adoption of the game reserve in Mabasa resulted in a lack of prioritisation in conserving the forest and regulating its use in preserving its spiritual and cultural significance. Instead, modernisation and the cash economy replaced traditional values and beliefs, disrupting traditional forms of management based on local knowledge and culture (Yuliani *et al.*, 2023). Shifts from relational to instrumental values have been linked to over-emphasis on economic factors, which potentially leads to the conservation value of forests being neglected (Yuliani *et al.*, 2023). Changing perceptions of nature are interconnected with changing attitudes toward forest management and policies, which, in turn, transform the landscape and further alter the perceptions of it (Roux *et al.*, 2022).

5.4.2.2. Multidimensional values maintaining sacred forests for future generations

As opposed to the values derived from the listing and ranking exercise, the FG discussions revealed that local community members emphasised the intrinsic value of nature, i.e., in relation to their ancestral and cultural relationships with nature. The findings for the ranked benefits illustrated that cultural values associated with the SF have been relegated to a lower priority in Mabasa, whilst the values derived at the community and individual levels via the FG discussions reflected a greater sense of cultural and spiritual values. The differences in how the FG participants value the SFs may stem from the nature of the exercises. In the in-depth FG discussions, participants' views seemed more influenced by the questions posed by the researcher and the perspectives exchanged during the session. In contrast, the listing and ranking exercise was more structured, with each participant independently listing the benefits, which led to a more independent evaluation of the forest's value. While, Bhatt *et al.* (2024), gathered complementary data on cultural, spiritual and conservation-related aspects by combining participatory listing and FG discussions, the outcomes of these methods in my study suggest a divergence in how participants engaged with and prioritized the SFs. This highlights how the same methods can yield different insights depending on the context and focus of the study.

At the community level, the Ndlankomo forest was valued based on their belief that the forest is "alive". Similar findings have been recorded amongst the Loita Maasai from Narok County of Kenya (Muhando,

2005). The Maasai who believe that the SF called *Entim e naimina-enkiyio* (forest of the lost child) is alive because it provides them with their physical, cultural and spiritual needs (Muhando, 2005). In some ways, this belief resembles a belief held by some of the Xhosa in the Alice and Peddie districts of the Eastern Cape province, South Africa. They believe that certain plants possess spiritual power and are connected to ancestors' spirits or are imbued with the spiritual power of their ancestors (Cocks *et al.*, 2012). The belief that the forest is alive is similar to those of other SFs where the community believe that the gods reside amongst the forest trees, which has contributed to the prohibition of disturbing the forest (Chandran and Hughes, 2000). Consequently, the belief held by the amaZizi plays a key role in influencing the treatment of all living entities in the SF with care and respect. This belief contributes to its protection. As such, the conservation ethics for some SNS are embedded in their religious value and beliefs (Mahaseth *et al.*, 2023). For example, the respect the Kikuyu people of Kenya have for large trees are based on the belief that they resemble the house of *Ngai* (indigenous God to the Kikuyu) (Muhando, 2005). The life of a tree is recognised as the life of the people, and the fear of punishment serves to protect the trees from being destroyed (Muhando, 2005). The belief that the SF is God's place and that a person can be spiritually connect to one's ancestors in the forest seems to have lost its significance amongst the majority of members in Mazizini. On the other hand, stories about users experiencing bad luck, such as long-term ailments, associated with cutting trees in the SF have also been documented by Allendorf *et al.* (2014). In Mabasa, the forest is still valued like the way in which previous generations valued it, particularly in relation to the *amaKhosi* that have been buried there. Their stories have been passed down through generations.

At the community level, both communities felt that the removal of the SF for development purposes was not worth the risk of environmental degradation, cultural loss and community well-being. However, they shared that they were not completely against the idea of removing the forest for a development opportunity. In Mabasa the FG participants felt that the decision to remove the forest would be based on a "majority rule" approach. Similarly, in Mazizini it was felt that the TA would need to carefully weigh the pros and cons before making such a decision. This insight showed that these decisions are not unilateral and highlights that such developments need to be sustainable and far-reaching in a community. These weighted decisions also reveal both tensions and opportunities that the community would need to navigate. Indigenous institutions and communities play a crucial role in resisting unsustainable practices, which in turn inspires the development of sustainable systems. Kurashima *et al.* (2018) explain that these sustainable systems when locals avoid opting for short-term gains that could lead to substantial social and environmental costs. This resonates with the claims made by both the Mabasa and Mazizini communities, i.e., their SFs are not just integral to the present community but need to be maintained for future generations.

At the individual level, cultural values were still recognised. Many were based on stories and myths that instilled fear and encouraged users to be respectful of the Funjwa forest in Mabasa. Participants also explained that for some locals their relationship with the SF stems from innate instincts and spiritual

'governance' that served to encourage sustainable use. For example, some forest users experience an intuitive feeling which would indicate to them that they are in an important place or a place in which they should not be. Such associations assist in protecting the sacred area of the Funjwa forest are linked to the deeper connections and meanings to the spiritual and ancestral significance of the forest. The social fence is known to support conservation through regular rituals and practices that maintains its significance (Ormsby *et al.*, 2010). Likewise, in Mabasa's SF, the decline in ancestral beliefs and practices, particularly by the *Nkosi*, may have weakened the influence of the 'social fence'. This was evident in the reduced manifestations of spiritual governance, such as user apparitions that guided forest use (Chapter 3).

Spirituality is believed by the elderly participants to affect a user's level of intuitiveness about the status of the area that they are in. The strength of these associations is dependent on one's level of spirituality. As noted by Verschuuren (2007), spirituality is valued depending on who perceives it as important and depending on their interpretation of it. Relationships shared with the forest were developed as a result of basic teachings and forms of respect passed down from parents or grandparents. The forest is also valued for its religious and spiritual functions, for example, some of the elderly value the forest for the ability to connect to their ancestors, particularly the ones who have been buried in the forest. This is similar to Chandrakanth *et al.* (2004), who claimed that SFs are valued for their spiritual and cultural significance because of the deep connections to religious beliefs associated with the site. Others value the SF because of its cultural significance and their fondness for nature, recognising its heritage and its role in supporting the community's well-being. The values attributed to the Funjwa forest at the community and individual levels are multi-dimensional. The Funjwa forest was valued for its tangible benefits, as well as for its cultural significance. For example, the former reflects that the forest was valued for its ability to provide access to physical resources, including cultural services that offered tangible benefits. For example, rituals that were undertaken in the Funjwa forest influenced rainfall, which echoes Byers *et al.* (2001: 208), who claimed that believers associated rain and fertility of the land as "real and material" and was "viewed as direct material value".

In Mazizini, values derived via the FG discussion at the individual level were less diverse than in Mabasa. Values in Mazizini were influenced by the spiritual meanings and significance attached to the forest. For example, requests would be received from ancestors via *izangoma*. Such associations assist in ensuring the forest is protected. It was felt that a well conserved forest enabled a community member to fulfil the request made by their ancestor. Additionally, some of the amaZizi participants' relationships with the forest were shaped by the work they did in the forest or the knowledge they had acquired from external organisations such as Wildlands Trust and Ezemvelo KZN Wildlife. In contrast, none of the amaZizi elderly participants shared any personal relationship with the sacred *Hlathi lama Khosi*. No direct links had been made to the area because royal family members are buried in *Hlathi lama Khosi*. Allendorf *et al.* (2014) recorded similar findings wherein no direct links could be made to the area.

5.4.2.3. Participatory mapping: understanding relational values in a spatial context

The location of *Nkosi* Funjwa's burial site was not disclosed as it is considered a 'guarded secret' (Chapter 3) to ensure the protection of the grave from witchcraft and desecration. Instead, the participants only mapped the location of where Funjwa's homestead was once situated. The concealment of the royal burial sites served to secure their sanctity (Verschuuren *et al.*, 2010). Therefore, the inability of the FG participants to spatially locate any of the burial sites during the participatory mapping exercise in both communities highlights the tradition of customary secrecy. This phenomenon relates to certain aspects of the culture being closely guarded secrets that are known only by their custodians (Garcia-Varela, 2007; Verschuuren *et al.*, 2010). Sensitivity and non-disclosure were also evident during the participatory mapping by the community participants in Sipalwini in Southern Suriname (Ramirez-Gomez and Brown, 2013). Nevertheless, the Mabasa and Mazizini community members mapped their sacred or culturally significant areas as opposed to the participants from the villages in Southern Suriname where sacred places were asked not to be mapped. The researchers refrained from mapping sacred sites for ethical reasons because of the sensitivity surrounding the matter and the significant role religion plays in the lives of the community (Ramirez-Gomez and Brown, 2013).

Although the Funjwa forest has much "deeper" sacred and ancestral connections than the Ndlankomo forest, the Nhlankomo forest has specific areas that are culturally significant and used for spiritual and cultural purposes reflected on the participatory map. These areas are believed to be "powerful" places for spiritual upliftment and ancestral connections. Similarly, Bernard (2003) pointed out that in the Southern African context, certain rivers and waterfalls are particularly favoured by ancestors or river spirits who are believed to reside in these spaces. In contrast, the sacred area of the Funjwa forest is rarely used (i.e., including for cultural purposes such as for conducting rituals and prayer). This was illustrated in the participatory mapping exercise. The sacred area rarely being used by the community concurs with the findings discussed in Chapter 3, whereby forest users related how they are discouraged and restricted from accessing this area. Therefore, the participatory map coincides with the regulations set out by the TA to restrict access and use in the SF (Chapter 3) as well as with *Nduna's* claims that people are discouraged from entering the most sacred area of the forest. With regard to cultural sites used for prayer and rituals in the SF, only a few sites were identified by the participants.

Spatially locating use areas also enabled an understanding of the values attached to the site to an extent. For example, only one logging site was identified within the sacred or cultural boundary. The participatory map illustrated the difference in forest use between the non-sacred and sacred areas of the Funjwa forest. Whilst in Mazizini, sites in the Ndlankomo forest of cultural significance either for prayer or medicinal plants harvested by traditional healers were located. The amaZizi mapped areas abundant in medicinal plants because these plants serve spiritual purposes and are increasingly used as income-generation. This was in contrast to the community participants in Sipalwini who mapped entire areas of medicinal value in their SFs (Ramirez-Gomez and Brown, 2013). This was believed to be because the

locals did not want to identify specific locations since the location of medicines is a sensitive issue (Ramirez-Gomez and Brown, 2013).

Through the participatory map exercise the SFs were identified as offering potential ecotourism opportunities for local communities. Presently, tourism opportunities are minimal in Mazizini and are non-existent in Mabasa. The Ndlankomo forest, with its beautiful waterfall site, may be considered as a possible heritage site due to its spiritual and cultural significance. The forest was further recognised for its natural beauty. The physical landscape was seen as offering outdoor activities such as hiking and walks. In Ramirez-Gomez and Brown's (2013) study a small percentage of respondents valued the SF for its floral diversity which was identified as attracting tourists and researchers. This was also evident in Mazizini where the natural beauty and diversity of the forest was considered promising for tourism. Others hoped that the Funjwa forest would be proclaimed as part of a heritage site. Such a proclamation was seen as preserving the site and providing development opportunities within the community. Domestic tourism opportunities were perceived as offering the opportunity for residents to fully appreciate their own culture and environmental heritage and to participate in recreational activities. The SF of Bonai in Ghana serves as an ecotourism centre and serves as a means for preserving different plant species used for curing many diseases (Tiimub *et al.*, 2020). Therefore, identifying the potential of SF through participatory mapping could help minimise the loss of biodiversity and foster innovative approaches in scientific research. Tourism opportunities may also help to revive the local history in Mabasa as well as the rituals that are meant to be performed. For example, communities surrounding the Tindangung sacred grove in Saveligu-Nanton District, Ghana, where almost 98% of the participants felt that the histories of the sacred groves attract people. Whilst almost 80% of the participants interviewed felt it was the routine of religious rituals performed that attracted visitors (Tiimub *et al.*, 2020).

5.4.3. The reduction in traditional governance and reverence of sacred forests

Traditional governance and respect for the SF were included as part of the trend analysis. This is because it is well recognised that taboos, restrictions and prohibition beliefs have contributed greatly to the conservation of many SFs (Agbaeze *et al.*, 2013). Allendorf *et al.* (2014) shared a similar sentiment concerning the contribution of effective and equitable rules developed over "many years" for the protection of SFs. However, the trend analysis in this study showed that traditional governance and respect for the SFs have been compromised in Mabasa and Mazizini, which coincides with the changes experienced in relation to the TA (Chapter 4). Similar to Rath *et al.* (2020) which found that the SFs in Banspal town in India, are at risk as alternative models for biodiversity conservation, the trend analysis findings in this study suggests the same for the Nhlankomo and the sacred Funjwa forests. In both communities there are no stringent laws or regulations and monitoring procedures, except for some consequences transgressors still face in Mazizini. The *Hlathi lama Khosi* in Mazizini is still protected by practices that are based on religious or cultural understandings. This is the case for many traditional societies and is considered a *de facto* protected area due to the presence and significance of ancestral

spirits (Chandrakanth *et al.*, 2004; Sinthumule and Mashau, 2020). Despite the protection of the *Hlathi lama Khosi*, there has been a decrease in the level and types of rules and regulations implemented within the community over the years. This decline is evident by the increase in use of the Ndlankomo forest, despite the *Nkosi* having spies to assist him of transgressions.

Changes in governance may considerably influence the potential and capacity to conserve biodiversity (Avtzis *et al.*, 2018). For example, the loss of guards in Mazizini and the cutting of the fences of the game reserve in Mabasa considerably undermined the conservation potential of these sites. These changes coincided with the reduction in respect for these forests. The participants in both sites attributed unsustainable and uncontrolled use to a lack of respect for the traditional beliefs and rules that used to serve to protect the SFs. The loss of respect for the TA has further contributed to the negligence of the sacred sites. Moreover, taboos, changes in religious beliefs and growing disbelief in cultural practices and ancestral traditional rituals have negatively affected ancestral preservation (e.g., ancestral mockery- Chapter 3) and conservation attitudes (e.g., unsustainable use, lack of fear in ancestral or traditional punishments). Likewise, Ballullaya *et al.* (2019) pointed out that religious beliefs and customs significantly influence attributes towards nature, as religious communities worship nature, its natural processes and animals, attributing divine qualities or spiritualising these entities.

In Mazizini the forest is no longer widely believed as representing God's place. It is also no longer believed to be under divine protection. These findings are similar to those in the Kerala and Karnataka States in India, wherein Ballullaya *et al.* (2019) identified three factors; growing disbelief, religious conversion to Hinduism and socio-cultural changes, that have undermined the conservation of SF. If respect and the belief in the sanctity of SFs are lost, then the deep sense of reverence and responsibility which is upheld through forest customs that promotes judicious use of the SFs is at risk. Unlike the community surrounding the Thathe Vondo SF (Sinthumule and Mashau, 2020), the Mabasa locals do not fear punishments (from the spirits and TA), which undermines the important role of taboos and the influence of spiritual governance in conserving SFs (outlined in Chapter 3). Therefore, the values and meanings attributed to the sacredness or spirituality of the sacred site that invariably contain conservation ethics (Anwana *et al.*, 2010), are being undermined and degraded. The situation in these communities contrasts with Chandrakanth *et al.* (2004), who claimed that the preservation of the SFs was ensured by deep religious reverence rather than resource scarcity. Byers *et al.* (2001) held the same view concerning deep reverence which motivated environmental conservation and protection. However, this motivation has been jeopardised in both communities in this study.

Traditional authorities once dedicated to protecting the forest have seen their roles diminish, particularly in Mabasa, leading to governance vacuums that allow unsustainable practices to emerge (Mahaseth *et al.*, 2023:331). The elderly participants pointed out that the lack of laws and traditional governance is increasingly threatening the condition of the forest. This aligns with the findings of Jimoh *et al.* (2012 cited in Babalola *et al.*, 2014), who discovered that the diminishing powers of TAs and cultural erosion have limited the effectiveness of traditional conservation measures protecting the SFs. For Mabasa, a

significant factor pertaining to this shift is due to the leadership that has evolved due to the socio-cultural history that has altered the conservation status of these SFs. For example, the enforcement of restrictions in the Funjwa forest revealed variations depending on the traditional authorities in charge over the years. These changes were a result of shifting laws and regulations, influenced by both the apartheid government and the establishment of the game reserves (Chapter 3). There are no formal structures to reprimand users who are destructive or disrespectful in the Funjwa forest. Like Mahaseth *et al.* (2023), recent trends in the reduction in traditions and customs, particularly in the second period of this study, are also a result of transgressors no longer facing severe consequences.

5.4.4. Stewardship ethic through conservation efforts and traditional ecological knowledge

The existence of SFs indicates that they have been previously maintained through traditional knowledge systems, indigenous cultural and religious beliefs and taboos thereby *de facto* conserving biodiversity and natural resources (Udeagha *et al.*, 2013). It is these factors, including the site's history and ancestral significance that influence the veneration of SFs. In Mabasa, the locals considered themselves as part of a “conserving nation”, which is not only imperative for conserving the natural environment, but also for preserving the heritage and biocultural associations of the site. This understanding is based on the belief that Zulus coexist with nature. Similar to the Zulus, the villagers in the Mount Kenya region have been acknowledged as being deeply religious and traditionally orientated. They are believed to uphold cultural customs and ancestral beliefs that are embedded in respect for the creation and in living in harmony with nature (Muhando, 2005). However, the stewardship morale of the Mabasa people has been compromised due to the deterioration of the ‘social fence’, which once helped to prevent the exploitation of the forest resources. This situation resembles other areas where the “local conservation ethic is weakening” (Bhagwat *et al.*, 2006: 522). The deterioration in the social fence coincides with the lack of respect for the SF, as indicated by the trend analysis.

Traditional ecological knowledge and traditional methods are also considered approaches used to manage and protect SNS (Wadley and Colfer, 2004). Both communities shared various traditional ecological practices that have contributed to sustainable use that has maintained forest condition. In Mazizini participants collect only deadwood, similar practices have been recorded by the local communities from the sacred groves in the Western Ghats of India (Bhagwat and Rutte, 2006).

The contributions of local organisations have been recognised for protecting SNS. Grassroots organisations manage their ancestral lands and resources acknowledging that the health of the community is dependent and inextricably linked to the health of the landscape (Kurashima *et al.*, 2018). This approach aligns with the value system of both communities who have prioritised their health. AmaZizi community members who work for local organisations and external conservation agencies have contributed towards safeguarding the site through invasive alien clearing, the construction of soil erosion control walls, and spreading awareness. Consequently, local organisations have also received help from external conservation agencies and environmental organisations, which have encouraged and

supported diverse management approaches to foster greater connectivity in the landscape (Barrow, 2010). Furthermore, there was the initiative to conserve plants found in the SF by the traditional healers in Mazizini which resembled the knowledge holders of the Adi tribe of India. The Adi tribe started a plantation of culturally and medicinally important vulnerable tree species in their community to overcome the effects of over-exploitation (Singh *et al.*, 2010).

5.5. Conclusion

The findings suggest that the two SFs are not just a part of the physical landscape but are an integral part of the community's sustenance and cultural heritage. The exploration of SF uses in Mabasa and Mazizini provided valuable insight into the multifaceted roles SFs play in the lives of the locals. The SFs provide a range of benefits, both tangible and intangible, except for the *Hlathi lama Khosi* which has only two uses attributed to it. Nevertheless, the Funjwa sacred forest and the culturally significant Nhlankomo forest are places of cultural and spiritual significance, wherein rituals and ceremonies are conducted. The level of SF use and the types of rituals performed by non-royal individuals differed based on factors like restrictions to access and associated beliefs within the forests. Sacred forests also contribute to the sustenance, well-being and livelihoods of the communities.

The participatory mapping revealed the geographical distribution of resource use zones within the forests. In Mazizini, it was found that non-spiritual use zones were located closest to the forest edge, where activities like collecting building wood and fuelwood occur. Conversely, culturally significant areas were located on steeper and more remote regions of the forest which overlapped with species-rich areas. In Mabasa, the participatory mapping revealed that the non-sacred area of the forest provided various benefits to the locals, whilst the sacred area of the forest was primarily reserved for its cultural significance. Yet, the listing and ranking procured different results. Like Mazizini, the sacred area of the Funjwa forest was also mapped as biologically diverse. This analysis emphasises the importance of spiritual values associated with the forests and the importance of safeguarding such sacred areas. However, the extent of spiritual values reflected in the participatory maps were in contradiction to the ranked benefits. The ranked benefits illustrated that the spiritual or cultural-related benefits for users in both communities were rarely listed (valued) as compared to other ES. Thus, the ranking of forest benefits contributed to the understanding of the local value systems used within the communities, reflecting differences in priorities related to economic well-being, physical well-being, and cultural heritage. Values were shaped by individuals' needs, preferences and experiences that affect the conservation and the preservation of the site. Based on the ranked benefits, it can be deduced that local biocultural relations in terms of the spiritual associations have been compromised. The results from the listing and ranking exercise and the general FG discussion are also not in alignment. The listing and ranking of benefits ascertained that locals seemed to prioritise the SF for economic and social reasons, whilst the FG discussions revealed that more emphasis was placed on the intrinsic value of nature, i.e., in relation to their ancestral and cultural relationships shared with nature.

In both communities, the bonds and values formed at the individual level with the SFs were primarily spiritually based, as the elderly participants were connected to the ancestral significance of the SFs. These intimate connections between the elderly participants and the SFs reflect the origins of conversation values within the community. Personal relationships were also gathered from the elderly participants in Mabasa, but not from the amaZizi elderly because they do not share a personal relationship with the *Hlathi lama Khosi*. The perspectives of the elders from Mabasa ranged from deep spiritual connections to bonds rooted in their cultural heritage, to a fondness for nature as well as pragmatic benefits like protection from diseases. These connections or relations, whether spiritual or practical, have fostered a strong sense of responsibility and stewardship towards the SFs. Similarly, bonds and values at the community level reflected that some meanings are derived from interactions with nature, whilst others are present regardless of their intrinsic value, e.g., relationships influenced by an innate instinct or through intuitive feelings experienced in the SF linked to ancestral presence. The communities revealed a strong commitment to safeguarding the SFs for future generations, viewing them as essential for their well-being, both materially and culturally. AmaZizi locals exhibited reverence for the living forest, driven by spiritual values, including ancestral requests made through *isangoma*.

Additionally, the removal or degradation of these forests would be met with resistance, as they are deemed irreplaceable in the lives of the people of Mabasa and Mazizini. Fostering a shared commitment to their preservation, including collaborations with external conservation agencies, highlights the power of collective action and could pave the way for co-management. External organisations working in the Mazizini community have also played a role in shaping their relationships with the forest, integrating knowledge and practices that align with contemporary conservation principles. Therefore, the desire within the community to rekindle and preserve conservation values and respect for the SFs for future generations is evident (and will be further analysed in Chapter 8). However, the outcomes from the trend analysis in reference to the type of rules and norms, and respect for these forests over the years suggests some deterioration in biocultural beliefs and traditional governance reflected in the previous chapter. For instance, the changes to the TA have contributed to changes in the locals' perspectives, values and respect. However, the extent of this change remains uncertain, emphasising the importance of understanding the social values that persist and their implications for conservation efforts. The driving forces that have impacted the TA and ancestral beliefs of the community (Chapter 4) coincide with the values derived from the ranked benefits. The symbolic identification of a SF as a cultural institution in the community has been undermined (Udeagha *et al.*, 2013). As a result, conservation or environmental values associated with these SFs are not salient to locals "in a direct and conscious way" (Allendorf *et al.*, 2014: 308). A deeper understanding of the spiritual values that persist and their implications for conservation efforts is needed. The lack of governance and belief (Chapter 4) has allowed outsiders, who lack deep biocultural connections with the landscape and "generational teachings" of values, to use the forest. Additionally, the decline in spiritual beliefs and consequent spiritual values have compromised TEK and co-dependence, which will be elaborated on in Chapter 6. As a result, the

conservation ethic in protecting the ecological integrity of the SFs is, therefore, increasingly threatened. Thus, the chapter has highlighted the complexity of meanings, values and evolving dynamics surrounding SFs in these communities, underscoring their continued significance, even as they adapt to changing circumstances and beliefs. Given the evidence of biocultural dissociations and the impact of socio-cultural and political factors on the remaining biocultural associations, Chapter 6 analyses how the ecological condition of the SFs has changed in the recent past. It, specifically, examines how changes in values and development have affected SF use and what this means for the ecological integrity of the SFs.

Chapter 6: Forest use and reliance trends, and their impacts on the sacred forests' ecological and cultural integrity

6.1. Introduction

Some institutions or traditional bodies permit locals access to SFs for their needs and livelihoods (Shengii, 2012; van Andel, 2012; Udeagha *et al.*, 2013; Mahaseth *et al.*, 2023), which also applies in the Mabasa and Mazizini communities. Such use of SFs illustrates that many people depend on nature to meet their basic needs or livelihoods (Bhagwat and Rutte, 2006; Verschuuren *et al.*, 2010; Wild *et al.*, 2010), as well as for their spiritual fulfilment (Verschuuren *et al.*, 2010; Wild *et al.*, 2010). As such, some SFs offer multiple benefits that have contributed to the social welfare and spiritual needs of adjacent communities (Adeyanju *et al.*, 2022; Maleku *et al.*, 2023). However, it is worth reiterating that use in the most sacred area in the Funjwa forest is prohibited, whilst some SFs are entirely off-limits or used by only certain individuals (Kamga-Kamdem, 2010), such as the *Hlathi lama Khosi* of the amaZizi (Chapters 3 and 5). As per the claims made by Wild *et al.* (2010) concerning the effectiveness of spiritual values in conserving SFs, Chapter 5 investigated whether the cultural and spiritual significance of the SFs contributes to how the site is valued and its continued existence. Based on the understanding of spiritual value according to Roux *et al.* (2022) and the findings in Chapter 5, spiritual value can be both affected and reflected in the type and extent of use of the SFs. This chapter then examines forest use and attempts to determine whether SFs serve as a valuable biological repository by maintaining a healthy forest condition. This chapter provides insight into the role SFs have played in the daily life of the locals and how this role has evolved. Additionally, examining forest use change provides insight into the shifts in cultural practices and the implications these changes have for the ecological condition of SFs (Alohou *et al.*, 2017). Insight about the implications for the ecological condition of the SFs can be gained through the identification of whether use is sustainable or not. Accordingly, this chapter presents changes in how the SFs are used, including the driving forces behind these changes, which allows for the identification of factors placing pressure on these ecosystems. The identification of these pressures helps to make sense of the ecological findings in the next chapter as well as in guiding future conservation strategies (Chapter 8).

Forest conditions are not static because they are subjected to historical changes and contemporary challenges. This chapter also assesses the condition of the forest by conducting spatial mapping of land cover using historical and recent aerial imagery to quantify changes over time. These quantified land cover changes, potentially influenced by current or historical forest use, provide a temporal perspective on forest condition and will further support the findings in Chapter 7. By integrating sociocultural analyses of the extent and nature of forest use changes with ecological assessments, this chapter offers a comprehensive understanding of the changes in connection to the use and ecological transformations of SFs.

6.2. Objective, research questions and methods

The objective of the chapter was to determine how the ecological condition and integrity of the SFs have changed over the recent past. To achieve this objective the following research questions were answered:

1. What are the SFs used for and how have these uses changed over time?
2. What drivers have contributed to any changes in the use of the SFs, and in what ways do these changes impact the biocultural relations within the communities?
3. Has forest use and its changes resulted in biological and structural changes in the SFs, and what trends have occurred in the land cover of the SFs?

This chapter primarily makes use of data collected through the trend analysis (Section 2.3.2.3.3) to understand forest use and how changes affect the availability of ecosystem services (ES), including changes in forest users and reliance on these ES. Participants had to state whether the availability of ES increased, decreased, remained unchanged or was absent for two periods in the trend analysis. The ES included in the trend analysis datasheet (Table 6.1) were identified during the preliminary visit to the community, which also served to inform the development of the datasheets. Each FG participant completed these datasheets individually, followed by collective group discussions. Additional ES were identified during the participatory listing exercise, but were not included in the original datasheets. These were instead evaluated through group discussions, with the researcher facilitating and recording the information on chart paper that was visible to the group. Similar to the trend analysis datasheet, the groups were asked if the availability of these additional ES had increased, decreased, remained unchanged, or was absent across the two recorded time periods. "Unchanged" in the datasheet refers to ES that were present prior to first period in the Table 6.1 or existed in both periods in Table 6.1, i.e., their availability remained the same. "Absent" indicates that the ES did not exist in one of the periods, or no longer exists in the second period.

The chapter also assesses forest use through FG discussions (Section 2.3.2.3.4), key informant interviews (Section 2.3.2.4), oral histories (Section 2.3.2.5) and participatory mapping (PM) (Section 2.4.2.3.1). Participatory mapping was used to assess forest condition. It should be noted that participatory mapping was done for both the sacred and non-sacred areas of the Funjwa forest, as it

constitutes a single forest patch. Whereas, for Mazizini the Nhlankomo forest was only mapped, with the exclusion of the *Hlathi lama Khosi* due to taboos and customary secrecy associated with the forest. Likewise, the remote sensing analysis was performed for both paired sites, excluding the *Hlathi lama Khosi*, respecting the local cultural tradition and serving to protect as per the local customs.

Forest condition is also assessed through Change Detection analysis (Section 2.3.2.2). The Time-series Change Detection analysis is used to understand the extent and rate of land cover loss and gain over time (Negassa *et al.*, 2020), looking at the changes in the forest structure and connectivity. Additionally, the land cover (LC) analysis provided insight into land cover conversions and attributed these changes, e.g., what land cover was gained or lost. The LC maps for the years listed in Table 6.4 were developed from Google Earth imagery for Mabasa and Mazizini, respectively. These were classified into two land cover categories, namely, forested and degraded. Similar to the work by Hussain *et al.* (2020), it was necessary to convert the imagery into thematic maps to allow for quantitative analysis to identify trends and understand changes in the land cover, if any.

6.3. Results

6.3.1. Factors influencing forest use

In Mabasa, community members have been allowed to collect or harvest natural resources from the forest as long as they follow the stipulated customs (Chapter 3). But the participants in Mabasa explained that the extent of use, i.e., how the SF is used, is influenced by the user's awareness of its ancestral significance. This awareness is also influenced by the relationship they shared with the forest which has been referred to as a "generational bond". The generational bond is developed through ancestral interaction or traditional cultural practices and beliefs that are passed down (Chapter 5). This bond is also influenced by the user's knowledge through their experience with nature or their level of spirituality. Spirituality plays a role in a user's intuitiveness concerning the status of the area that they are in through encounters with ancestor presence (Chapter 4). However, the general consensus was that there is no real difference between the way the Mabasa participants or locals use the Funjwa forest as compared to other non-sacred forest patches because nature should be protected. This consensus was based on the belief that forest users should be respectful of nature and should act accordingly. They added that the Funjwa forest is primarily reserved for the royal family as they are meant to visit the *amaKhosi* burial sites and conduct ceremonies. There are also other families within the community that visit the burial sites of their family members who were buried in the forest. On the other hand, the *Hlathi lama Khosi* is not used by non-royal locals of the Mazizini community. Although it is believed that the Nhlankomo forest is restricted from access (Chapter 3), it is used by the *amaZizi* locals. The sacred area of the Funjwa forest and the Nhlankomo forest located on the sacred Nhlankomo mountain in Mabasa and Mazizini, respectively, were used for multiple purposes.

6.3.2. Changes in the availability of forest ecosystem services and the drivers of change

Some of the ES that were identified during the participatory listing and ranking exercise overlapped between the study areas, these included grazing land for livestock and harvesting of wild fruits, fencing poles and crafting material. The amaZizi FG participants also included the harvesting of roofing poles, wood used for funerals and the use of the forest for prayer. The Mabasa FG participants included harvesting thatching grass, cultivation of community vegetable gardens, harvesting honey, hunting birds as well as the forest being used for spiritual upliftment and conducting rituals. Table 6.1 illustrates changes in the availability of ES provided by the Funjwa and Nhlankomo forest, that have been primarily influenced by the way these resources are used. As such, this section also discusses the group-identified changes in ES availability, along with the factors contributing to these changes.

Table 6.1. Changes in the availability of ecosystem services in the forests across the two periods (2000-2010 and 2011-2020) (percentage of respondents).

Study site Forest Ecosystem Services (ES)	Mabasa				Manzini			
	Increased	Decreased	Unchanged	Absent	Increased	Decreased	Unchanged	Absent
Year	2000-2010				2000-2010			
Fuelwood	25	25	50	0	20	60	20	0
Medicinal plants	60	35	5	0	70	30	0	0
Building material	35	60	5	0	55	45	0	0
Tourism	70	0	5	25	15	25	15	45
Year	2011-2020				2011-2020			
Fuelwood	60	15	25	0	80	20	0	0
Medicinal plants	5	95	0	0	5	95	0	0
Building material	95	5	0	0	35	65	0	0
Tourism	0	40	0	60	80	5	15	0

6.3.2.1. Fuelwood

The elderly participants recalled that in the past locals collected deadwood from the indigenous forest patches on the Nhlankomo mountain, including the Nhlankomo forest. The FG participants shared that the local amaZizi did not only collect deadwood but also harvested wood from the Nhlankomo forest. Hence, the reduced availability of fuelwood during the first period (Table 6.1). In Mabasa, the majority of the FG participants shared that the availability of fuelwood remained the same as in the late 1990s. They added that the locals harvested wood and collected deadwood mainly from the non-sacred area of the Funjwa forest.

The locals in both communities initially relied on fuelwood as the only resource available for cooking and heating purposes. As the years progressed the local communities also used coal stoves or gas/paraffin stoves but these changes did not significantly impact fuelwood use. Fuelwood use practices are perceived to have significantly changed in both communities after the introduction of electricity in the late 2000s (Table 6.1). In Mabasa, electricity was first introduced to the Mseleni (missionary) Hospital and then became accessible to the broader community in 1991, but widespread access only occurred in the late 2000s. With the introduction of electricity participants reported that locals in both

communities began to collect fuelwood from surrounding bushes as opposed to harvesting from the SFs. For example, the amaZizi harvest *Diospyros whyteana* (*mnqandani*) located at the foothills of the mountains, and they gather fuelwood from the *Acacia mearnsii* “plantations” (an invasive alien species) bordering the Nhlankomo forest. The participants in Mabasa also shared that most members of the community avoid the Funjwa forest in its entirety, i.e., the non-sacred area of the forest, unless there was a need for a lot of fuelwood, e.g., for ceremonies or funerals, and are mainly harvested from the forest edge. For these reasons, the availability of fuelwood in both forests is believed to have increased during the second period (Table 6.1).

6.3.2.2. Traditional medicine (*muthi*)

In both communities, the FG participants shared that in the past *muthi* was only harvested out of need. The Mabasa participants mentioned that any knowledgeable individual was permitted to collect *muthi*, and that *muthi* was primarily harvested by *izinyanga* (traditional herbalists) and *isangoma* (traditional healers) to treat a person. Likewise, the amaZizi participants noted that only individuals with knowledge of *muthi* were permitted to harvest from the indigenous forests on the sacred Nhlankomo mountain with permission from the TA. In Mabasa, the participants mentioned that the need to harvest *muthi* from the forest began to decrease with the establishment of the hospital in the community. In contrast, the Mazizini community did not have a hospital; instead, a doctor visited the community to treat those with chronic or severe illnesses. Typically, the amaZizi locals would use their *muthi* but sought the doctor’s help if the *muthi* was ineffective. During the early 2000s in both communities, the establishment of clinics resulted in a generational shift in *muthi* use, i.e., with the younger generation preferring to use pharmaceutical medicines while the older generation preferred to continue using traditional medicines. This shift concurs with the increased availability of *muthi* during the first period, but a decrease in the availability during the second period (Table 6.1). Participants in both communities expressed their concern over the increased *muthi* use, which was mainly attributed to the rise in traditional healers or herbalists in the area exploiting medicinal plants and the demand for *muthi* from cities like Durban. The reasons for this demand have been attributed to (1) a resurgence in the adoption of traditional practices and customs, which the FG participants claimed to be a “cultural renaissance”, (2) to improve the quality of life, and (3) the increasing dissatisfaction with Western medicines. In Mazizini, participants felt that there has been an increase in the number of traditional healers because of the surge in *muthi* demand during the Covid-19 pandemic. In Mabasa, medicinal plants have also been subjected to extensive and destructive harvest by outsiders. Outsiders have come into the area to harvest taking advantage of the demand for *muthi* because the SF is believed to have very powerful *muthi* compared to other sites in KwaZulu-Natal (KZN) province.

6.3.2.3. Building material

In Mabasa, various *izigxobo* (tree logs) are harvested from *umthathi* (*Ptaeroxylon obliquum*) and *umdakane* (*Apodytes dimidiata*) as building poles to construct homes and fences. The elderly

participants in Mabasa mentioned *izintingo* (long sticks of various plant species) that were used to build the “square” traditional houses native to Mabasa. *Izintingo* were weaved with reeds and tied together using *isundu* (palm tree leaves). Traditionally, *isundu* was used in place of nails due to its strength. Additionally, trees species like *umthombothi* (*Spirostachys africana*), *umthathi* (*Ptaeroxylon obliquum*), *iphahla* (*Brachylaena discolor*) were harvested as *amabhanuko* (long poles or sticks used for roofing). In Mabasa, the square traditional houses were more common than the mud huts or rondavels built with logs. In Mazizini, the amaZizi traditional homesteads were built out of logs, mud, rocks and slates.

In Mabasa, the reconstruction of the missionary church (Chapter 4) introduced modern building materials to the community. The influence of modern architecture was further advanced by the implementation of the Reconstruction and Development Programme (RDP) which included a low-cost housing project, which began in both communities during the early 2000s. The RDP housing influenced how traditional homes were constructed in these communities. Locals increasingly preferred modern housing, for example, Mrs Mbhuyazi from Mazizini preferred the RDP housing because it provided better shelter than traditional houses. Despite the RDP housing project, 60% of the FG participants from Mabasa explained that most people still depended on the forest for building poles during the early 2000s, which caused a decline in the availability of building materials (Table 6.1). The remaining 40% mentioned that locals were not as reliant on the forest for building poles and explained that community members were already using modern materials like concrete and corrugated iron to build and maintain their houses. On the other hand, the majority of the amaZizi participants felt that the availability of building wood increased during the early 2000s due to the RDP housing project. They also shared that the population of the community was smaller. The minority stated that in the 1990s the use of building wood increased which resulted in a decline in the availability of building wood during the first period because trees had not regrown. Presently, modern materials such as corrugated iron and blocks are being increasingly used in both communities. Therefore, 95% of the participants in Mabasa stated that during the late 2000s, there was an increase in the availability of building wood. However, it was noted that some locals still use "traditional" materials to build ancestral huts which are attached to the main homestead to host rituals and traditional ceremonies. Even though most of the amaZizi community preferred not to harvest during the late 2000s, 65% of the participants stated that the availability of building wood decreased because locals harvested more extensively using tractors to sell wood in the town.

The trend analysis for roofing material was done as a group in Mazizini, whilst thatching grass was done as a group by the Mabasa participants. Half of the amaZizi participants acknowledged a decrease in the availability of roofing poles. The reason given was that roofing poles that were harvested offered a cheaper alternative than purchasing them from local stores. The other half of the participants mentioned an increase in the availability of roofing poles which was deemed a consequence of the preference locals had for store-bought material. For the second period, the majority stated that the availability of roofing poles increased because those who harvested roofing poles did so mainly from the plantations, whilst

other members of the community increasingly preferred store-bought poles. The increased use of store-bought poles was attributed to changes in the design and type of houses built. The Mabasa participants also evaluated thatching grass as a group, which was listed during the participatory listing exercise. The majority of the participants stated that natural resources used for thatching had increased over the two periods because of the shift to modern homes and concerns over thatching skills that are becoming increasingly scarce.

Fencing poles, identified during the participatory listing existing, were also considered in both Mabasa and Mazizini and evaluated as a group. The majority of the participants in Mabasa felt that the availability of fencing poles increased during the first period. The reason attributed to this increase was that fewer members of the community fenced their homesteads. They explained that there was no need at the time for community members to fence their homes because families had been planting their crops in allocated fields away from the homestead. In the second period, the participants shared that most community members preferred to purchase fencing poles from local stores and felt that the availability of fencing poles increased, whilst the minority felt that the availability of fencing poles from the forest had decreased. The minority of the group claimed that many households in the community harvested fencing poles from the forest as a cheaper alternative. In contrast to Mabasa, the majority of the amaZizi participants felt that the availability of fencing material had decreased in the first period because of the high demand and use that existed for fencing poles at the time. In the second period, it was felt that the availability of fencing material had increased because most households were purchasing poles from the local stores like that of Mabasa.

6.3.2.4. Farming of community forest crop gardens, harvesting wild fruits and hunting birds

Wild foods were evaluated as a group in both communities. Most of the amaZizi FG participants stated that there were no changes in the availability of wild fruits in the first period, whilst the minority said it decreased because there were many forest users. For the second period, the majority stated that wild fruits decreased because of invasive alien species in the forest and due to the effects of climate change. In Mabasa, most of the FG participants stated that the availability of wild fruits remained the same in the first period, i.e., since the 1990s, but increased in the second period because community members preferred store-bought fruits. A minority did however feel that the availability of wild fruits had decreased in the second period due to seasonal changes and climate change. The Mabasa participants also shared that the availability of honey in the forest remained the same for both periods. The minority stated that it increased in the second period because the size of the forest had increased, and there were more flowers available for bees to collect pollen from. The demand for honey had also lessened because locals could purchase honey. Additionally, the participants disclosed that locals would hunt birds for consumption, which they felt contributed to the decline in the bird population in the first period. These numbers were perceived by the FG participants to have increased during the second period because community members were no longer interested in hunting birds due to increased access to food following the introduction of shops in the community. In Mabasa it was further discovered that locals

planted in the wetland of the Funjwa forest, referred to as "community gardens". The participants believed that the practice of planting and maintaining community gardens stayed the same in the first period, but this practice decreased in the second period. The latter coincides with the locals' preference for planting in their yards (small plots in their homesteads) rather than communal fields. Traditional foods are no longer popular in the community because locals purchase vegetables from stores.

6.3.2.5. Tourism

Even though the Royal Natal National Park (RNNP) is adjacent to the Mazizini community, the majority of participants felt that tourists who visited the RNNP during the early 2000s did not benefit them and that the community remained isolated from its own tourism opportunities. However, during the late 2000s, the majority acknowledged receiving benefits from the tourists who visited RNNP and that tourists began visiting the Nhlankomo mountain in the community. One participant shared that the tourists visiting the Nhlankomo mountain and caves in the community were accompanied by local tour guides. By 2019 activities such as horse riding and hiking were available, but were later affected in 2020 due to the COVID-19 pandemic. In Mabasa, despite the participants from one of the focus groups claiming that there was no tourism during the early 2000s, all the other FG participants mentioned that tourism opportunities increased in the first period because of the game reserve. They stated that the game reserve surrounded the Funjwa forest and the adjacent lake, Lake Sibayi. However, information about the game reserve was omitted by one of the groups, likely due to the presence of the community representative during the FG workshop. It was later discovered that the game reserve is a sensitive topic within the community. Those who shared about the game reserve reported that the closure of the game reserve led to the complete demise of tourism during the second period.

6.3.2.6. Crafts

Both communities listed crafting material as a benefit used by the community and its availability was evaluated as a group. In Mabasa, the majority of participants mentioned that the availability of resources used for crafting increased in the first period because fewer people were making crafts. They explained that despite tourism opportunities that were present in the community, these opportunities were short-lived. The domestic use of crafts was also reduced because of the introduction of local stores in the community. As such, plants were believed to have been given an opportunity to regenerate. The FG participants further stated that users who harvested crafting material did so sustainably. The availability of crafting materials remained high in the second period due to the absence of tourism opportunities in the community and the continued limited domestic use of handmade crafts by community members. Similarly in Mazizini, the majority of the amaZizi FG participants felt that the availability of craft resources increased in the first period because there were fewer members of the community who were engaged in craft-making. In the second period, the majority stated that crafting resources from the forest decreased significantly. Craft-makers were now selling their crafts at the Thandanani Crafts Centre in the community due to the increase in tourism. The FG participants added that longer walks were

undertaken to retrieve crafting wood (e.g., *Greyia sutherlandii* (bottle brush), *Cussonia spicata* (cabbage tree) suggesting their decreasing population.

6.3.2.7. Spiritual values

The sacred area of the Funjwa forest is used for spiritual upliftment and psychological well-being. One of the FG participants explained that the SF is visited to help combat his bad temperament and clear his mind. There are also cleansing rituals that are practiced, particularly by *isangoma*, such as *ukuhlambuluga/ ugugeza/ ukuhlamba*. These cleansing rituals are done for spiritual upliftment, to ward off negative energies or to help improve one's health. These rituals require the use of certain plants, for example, *Intelezi (Portulacaria afra)* and *Ikonono/uMkhonono (Terminalia sericea)*. A cleansing ritual is usually done after consultation with a *sangoma*, whereby the *sangoma* “cleanses” the patient. It is practiced in secluded areas, e.g., a forest, bush or plantation. It was noted that a person who did a cleansing ritual in the Funjwa forest, merely did so because it was a secluded place as opposed to it being sacred. There are other traditional practices associated with the SF that are conducted by either ordinary members of the community or by *abathandazi* (“prophets”, i.e., a person who has visions and prays for people), but are believed to have declined over time (due to cultural and religious changes outlined in Chapter 4). Additionally, most participants believed that religiocultural practices such as ceremonies and rituals conducted by the royal family in the Funjwa forest have remained unchanged for both periods because these have not taken place in the Funjwa forest for decades. Such practices have been held in the sacred Emzinyeni forest, but the participants were unsure if these rituals are still practiced in the Emzinyeni SF. However, the participants noted that people are becoming more aware of the *amaKhosi* burial sites and *Nkosi* Funjwa’s legacy. They added that some commoners are also buried in the forest and are meant to be visited by their respective families.

Unlike the Mabasa SF, the *Hlathi lama Khosi* is not associated with any use, apart from the *amaKhosi* burials. On the other hand, the Nhlinkomo forest is considered by some members of the community as a place for praying and meditation. The cultural significance of the Nhlinkomo forest is attributed to it being part of the wilderness, which is culturally important to the *amaZizi* for ancestral connection and for their acquisition of medicinal plants (Chapter 3). As such, the cultural significance of the Nhlinkomo forest varies within the community as it is dependent on a person’s commitment to the ancestral beliefs and practices (Chapter 3). However, most *amaZizi* participants mentioned that the number of people who pray in the forest decreased because locals increasingly preferred to pray at home or at the rivers and springs. Additionally, praying in the forest continued to decrease in the second period because community members preferred to pray in church. Ceremonies such as the Thanksgiving ceremony are also no longer practiced and have been elaborated on in Chapter 4. Additionally, the *amaZizi* harvest wood used for burials from the Nhlinkomo forest. Most *amaZizi* participants stated that wood collected for funerals did not change much in the first period. However, they felt that the availability of funeral wood increased in the second period because people began to purchase wood as it was more convenient.

6.3.2.8. Grazing

Livestock grazing in the forests was evaluated as a group in Mabasa and Mazizini. Grazing availability in the forest in Mabasa is perceived by the FG participants to have been limited in the first period due to the presence of the game reserve and remained unchanged in the second period even though the game reserve was closed down. A minority did, however, mention that the availability of grazing areas decreased in the second period because of the encroachment of bush in the forest. In Mazizini, the majority mentioned that the availability of grazing areas within the forest decreased for both year periods. They attributed this to goats that entered the forest to graze. Participants went on further to describe how goats destroy the availability of grass for cattle to graze. Goats were also acknowledged as contributing to the erosion of soil within the forest because of their consumption of grass. A minority felt that the availability of grazing lands in the forest had stayed the same during both periods because cattle only grazed in areas assigned by the TA.

6.3.3. Changes in reliance on the sacred forests

Given the changes in forest use patterns experienced across both communities as per the changes in the availability of forest ES (Section 6.3.2), changes in reliance on the forest and the number of users were also assessed. The majority of participants in Mabasa stated that forest users and the level of reliance increased for both periods. For the first period (Figure 6.1a), locals mainly depended on the forest for resources such as building poles, crafting material, and grazing, but also used the forest for gardening, foraging, spiritual upliftment and maintaining a spiritual connection to the ancestors, etc. Similarly, the FG participants in Mazizini stated that there were many users during the first period because many community members depended on the forest for fuelwood, roofing poles and religiocultural purposes such as for praying and the collection of wood used for funerals. However, some participants expressed that they felt that the number of forest users decreased during the early 2000s. They explained that fewer people depended on the forest for building wood, fencing poles and *muthi* because of increased service delivery and development in the area. The *inyanga* also stated that there were fewer users in the past, due to stringent traditional laws that existed and the presence of forest guards.

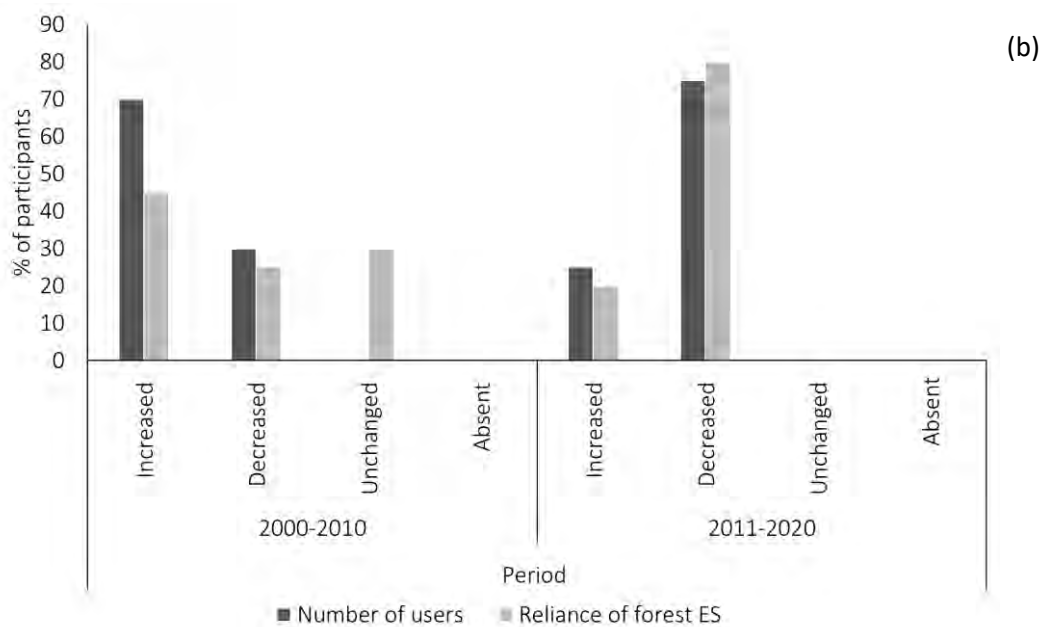
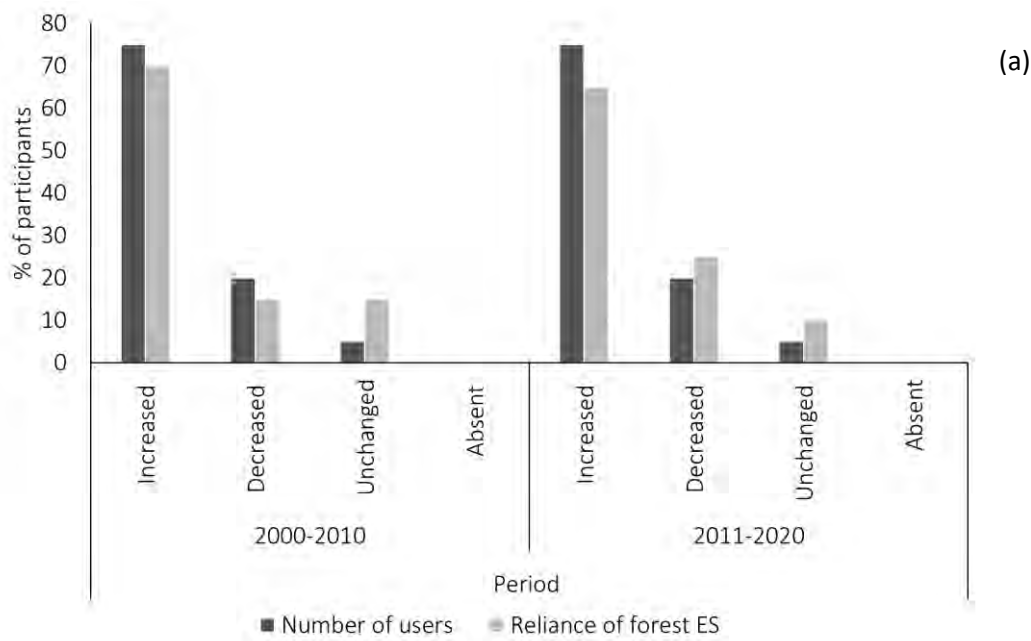


Figure 6.1. Changes in the numbers of forest users and those dependent on the (a) Funjwa forest and (b) Nhlankomo forest across the two periods (2000-2010 and 2011-2020) (percentage of respondents).

During the second period in Mabasa, people were still heavily dependent on the forest but for a different reason (Figure 6.1a). Users now rely on the forest for *muthi* due to the increasing popularity of the use of traditional medicine in the cities, which coincided with the rise in “traditional healers” given the lack of employment opportunities. Some of the participants felt that the number of forest users decreased for both periods because community members were less reliant on forest resources to fulfil their domestic needs and added that medicinal plants are not needed as frequently. In Mazizini, the FG participants claimed that forest users decreased during the late 2000s (Figure 6.1b). They shared that the amaZizi locals were less reliant on the Nhlankomo forest even though traditional healers using the forest

substantially increased in the second period. The participants explained that this reduced reliance is due to even greater access to service delivery. The participants felt it important to point out that in the year 2020, there was a slight increase in the number of forest users due to the COVID-19 pandemic and the socio-economic hardships faced by the community as a consequence of the lockdown and social distancing.

6.3.4. Implications of the drivers of change on forest condition and biocultural relations

Based on the drivers of change that affected the availability of certain ES or natural resources offered by the SFs, participants also revealed the broader implications of these changes. The implications captured here are either attributed to the condition of the forests and/or the biocultural relations in the community including those associated with the SFs. Despite increased access to electricity, the participants stated that fuelwood remains a necessary resource for many locals, particularly for cooking certain foods like *izinkobe* (samp) and beans that take a long time to cook or due to the high cost of electricity. Some participants in Mazizini still face electrical supply issues, i.e., they receive low amps provided by the Electricity Supply Commission (ESKOM), limiting the simultaneous use of multiple appliances. Similarly, some locals in Mabasa continue to collect deadwood from the Funjwa forest. However, as mentioned above, given that fuelwood harvesting is primarily from bushes close by, the condition of the forests is considered by the FG participants not to be compromised.

With regard to the extensive and destructive harvest of *muthi* and the rise of fraudulent traditional and spiritual healers, many of whom were believed to be outsiders, the health of the forest is at risk. The forest is being threatened due to over-exploitation of medicinal plants within the most sacred area of the Funjwa forest. The belief that the Funjwa forest contains very powerful *muthi* compared to other sites in KwaZulu-Natal (KZN) seems to be further compromising the ecological and cultural integrity of the forest. The participants explained that this belief concerning “powerful” *muthi* has subjected the Funjwa forest to unsustainable use because the *muthi* fetch higher prices in the cities. Over-harvesting has reduced the abundance of certain trees, e.g., *umdlebe* (*Synadenium cupulare*), whilst a few species have been claimed to be endangered or extinct in the area (Section 6.3.5.1).

Mrs Nxumalo shared that changes in the traditional homes built because of the increasing use of modern materials, such as corrugated iron and blocks, have resulted in the loss of some cultural practices. The change in traditional architecture has also impacted certain cultural customs, for example, customs related to entering one’s home. A traditional home is deliberately built in a way that requires a person to bend and enter the homestead which serves as a sign of respect and acknowledgement of the presence of one’s ancestors. Other modern influences such as the practice of fencing one’s property for security reasons and for the protection of crops planted in the homestead from livestock roaming have been increasingly evident in both communities. Participants noted that fencing affected the social dynamics in the community as it undermined the principle of *ubuntu* (compassion and togetherness) as the community became increasingly segregated. Since fencing material is now bought from the local stores,

the impacts of timber harvesting were not a concern for either of the SFs. The introduction of shops has also affected several aspects of traditional life and resource acquisition from the forests in both communities. Concerns over preference for store-bought items over hand-crafted items were acknowledged as not only affecting the loss of cultural artefacts or heritage but also the loss of skill given that craft-making is becoming increasingly less practiced. Likewise, participants shared the decline in community members who engage in and know the skill of thatching. The need for community gardens in the Funjwa forest has decreased because traditional crops are no longer popular in the community. For example, traditional crops like maize that is traditionally grown, ground and mixed with other crops, have become less popular as locals switch to store-bought food. As a consequence of this change, the Mabasa participants also shared about the loss of subsistence farming practices in the community. This has resulted in the reduction of crop fields adjacent to the Funjwa forest. Subsistence farming is no longer preferred as it is considered labour-intensive and time-consuming.

In addition, they shared that the changes in subsistence farming practices affected the "sense of community" which was created while working together in the fields. They added that other cultural practices are no longer being upheld because of the lack of subsistence farming. For example, in Mabasa the *kuphakela inkosi* practice no longer takes place. *Kuphakela inkosi* directly translates to "dish up for the king", of which a portion of one's harvest would be given to the *Nkosi* each year. The amaZizi FG participants explained that the Thanksgiving ceremony is no longer upheld because fewer people are engaged in subsistence farming. The participants also stated how the lack of access to traditional foods had an impact on their relationships with their ancestors. The reason is that when rituals and traditional ceremonies are performed, the ancestors are present and traditional foods are given as an offering. The changes in the types of crops planted and the loss in subsistence farming have affected how meals are prepared which has had other broader cultural implications. Mrs Makhaza explained that in the past women would harvest and grind their maize in the homestead and that during this time stories about the local history would be shared with their children. Lastly, implications on spiritual values concerning the practice of ceremonies and rituals conducted by the royal family in the Funjwa forest not being adhered to are believed to have affected the spiritual potency of ancestral presence in the forest. The implications of spiritual potency being undermined have been acknowledged in Chapter 5.

6.3.5. Forest integrity and condition

The ecological integrity of the forest refers to the combination of biological diversity, structural condition and ecosystem processes of "an area at a given point in time" (Bridgewater *et al.*, 2014: 61). As such, this section considered trends in plant and animal species composition, trends in forest size and canopy openings, intactness and areas of forest degradation and species hotspots have been identified.

6.3.5.1. Perceptions of changes of species in the sacred forests

The Mabasa participants listed several species that they believed were endemic to the Funjwa forest. However, some of the species that were listed as endemic (Table 6.2) are actually not endemic to South

Africa. Instead, some are localised to specific areas within the province of KwaZulu-Natal such as *Lasiodiscus pervillei*, *Cleistanthus schlechteri*, etc. Participants also listed a few plant species that they considered to be endangered or declining in the forest. Table 6.2 illustrates some species listed as declining as per the Red List of South African plants. In addition, the FG participants mentioned a few species that they believe are extinct in the area, however, some of these species were actually found in the field surveys in this study (Table 6.2). Other species regarded by participants as extinct in the area were not found in the plots surveyed, such as *imphindumshaye* (*Adenia gummifera*) and *umdlebe* (*Synadenium cupulare*), but were said to be found in other areas of the community. Lastly, Mr Thwala pointed out two species that are extensively harvested but have been able to survive, “were it not for their expansive/thriving population they would have been extinct by now”. These species were *umdoni* (*Syzygium cordatum*) and *umganu* (*Sclerocarya birrea*). The amaZizi FG participants also listed plant species that have been disappearing, some of which overlap with the risk of extinction as per the Red List illustrated in Table (6.2) whilst others were noted as least concern by SANBI. Some of the FG participants also noted that some plants grow at certain altitudes in the forest. For example, *Alepidea amatymbica* is found at higher altitudes in the forest. Moreover, the FG participants claimed that there has been an increase in invasive alien plants posing a threat to indigenous species within the forest. According to the participants in Mabasa, the rise in invasive alien species is a consequence of the lack of knowledge locals have of them. “People plant alien [invasive] plants in their yards because they are beautiful without knowing that they are alien plants”, said Mrs Ntuli. As a consequence, it is perceived by the FG participants that the forest is not well preserved

Table 6.2. The conservation status of plant species according to the South African Biodiversity Institute versus what the participants believe is the status of plant species in the sacred forests

Study area	Status according to the participants	Scientific and Zulu name	Species noted in field survey	Plant species status according to the SANBI Red List	Uses
Mabasa	Endemic	<i>Lasiodiscus pervillei</i> (uManana)	No	Least concern and not endemic to South Africa (distribution localised to northern KZN)	Medicinal
		<i>Cleistanthus schlechteri</i> (uMzithi)	Yes	Least concern and not endemic to South Africa (found in the northern regions of the country)	Medicinal
		<i>Diospyros natalensis</i> (Inhlanhlemphe)	No	Least concern and not endemic to South Africa	Medicinal
		<i>Adenia gummifera</i> (Imphindumshaye)	No	Declining and not endemic to South Africa	Medicinal
		<i>Ptaeroxylon obliquum</i> (Umthathe)	No	Least concern and not endemic to South Africa	Fencing wood
	Endangered/declining	<i>Albizia andianthifolia</i> (Igowani)	Yes	Least concern	Medicinal
		<i>Psyrax obovata</i> (uMgodankawu)	Yes	Least concern	Medicinal
		<i>Garcinia livingstonei</i> (uMphimbi)	Yes	Least concern	Medicinal
		<i>Elaeodendron croceum</i> (Thambolehoshan)	No	Declining	Medicinal
		<i>Warburgia salutaris</i> (Isibaha)	No	Endangered	Medicinal
<i>Acridocarpus natalitius</i> (uMabophe/Mabowha)		No	Declining	Medicinal	
<i>Lasiodiscus pervillei</i> (uManana)		No	Least concern	Medicinal	
Concern	<i>Suregada zanzibariensis</i> (Ikhukhwani)	Yes	Least concern	Medicinal	
	<i>Cucumis africanus</i> (umnwebe)	No	Least concern	Wild fruit	
Extinct in the area (<i>Adenia gummifera</i> - but found close to the ocean) (<i>Synadenium cupulare</i> - but available in another forest in Mabasa i.e., the eNkonyameni forest to the east of the Funjwa forest)	<i>Kigelia africana</i> (umkulani)	Yes	Least concern	Medicinal	
	<i>Adenia gummifera</i> (imphindumshaye)	No	Declining	Medicinal	
	<i>Acridocarpus natalitius</i> (umabophe/umabopha)	No	Declining	Medicinal	
	<i>Synadenium cupulare</i> (umdlebe)	No	Least concern	Medicinal	
Concern	<i>Syzygium cordatum</i> (umdoni)	No	Declining	Medicinal	
	<i>Sclerocarya birrea</i> (umganu)	Yes	Declining	Annual marula ceremony	
Mazizini	Least concern	<i>Podocarpus falcatus</i> (umsonti)	Yes	Least concern	Medicinal/timber use
		<i>Podocarpus latifolius</i> (umsonti)	Yes	Declining	Medicinal/timber use
	Endangered/declining	<i>Cyathea dregei</i> (isikhomakhoma)	No	Least concern, however, protected tree in most provinces	Medicinal
		<i>Encephalartos natalensis</i> (Isigqiki-somkhovu)	No	Vulnerable and high risk of extinction in the wild	Medicinal/cultural/spiritual
<i>Encephalartos senticosus</i> (Isigqiki-somkhovu)	No	Vulnerable and high risk of extinction in the wild	Medicinal/cultural/spiritual		

The trend analysis for plant composition (Table 6.3) in Mazizini illustrated a decline during the second period attributed to the exponential increase in traditional healers and the environmental impacts of invasive alien species, soil erosion and changes in rainfall. Nonetheless, participants identified species-rich areas during the participatory mapping within the core area of two forest pockets (in the mountain gorges and valleys) (Figure 6.2). These areas are believed to be less frequently visited or used by locals. It was also mentioned that high species richness occurs along rivers and streams because of the moist and fertile soils and that medicinal plants are mainly found along the streams. In contrast to Mazizini, plant composition in Mabasa increased for both periods even though the participants placed much emphasis on the increased exploitative use of and reliance on the forest for medicinal plants. During the participatory mapping, the participants also identified biodiverse hotspots or species-rich areas (Figure 6.2) such as for *umthombothi* (*Spirostachys africana*- this coincided with the ecological surveys). Frog species hotspot was mapped just outside the sacred area of the forest. A second species-rich area was located within the boundary of the sacred area of the forest.

Additionally, the participants in Mabasa listed animals that are no longer present in the SF such as zebras, impalas, nyalas, wildebeest and bushbuck. The participants explained that members of the community came in large groups and poached animals from the game reserve, essentially looting it in a manner similar to a riot, which contributed to its closure (Chapter 4). Other wild game such as *umzika* (reedbuck), *imkhumbi/impunzi* (duiker), *imgankla* (kudu) and *iqhina* (steenbok) have also decreased considerably over the years. Table 6.3 illustrates that the majority of the FG participants claimed that animal composition, i.e., which species are there and in what numbers, decreased in the second period. In Mazizini wild pigs, wildcats, baboons, mountain reedbuck and red/brown rabbits/hare (*ihholo*) have critically decreased over the years due to unsustainable hunting. Participants mentioned that most locals no longer hunt due to laziness, the influences of modernisation and becoming increasingly detached from nature. Participants shared that those who continue to hunt do so unsustainably and as a result animal composition has been decreasing since the early 2000s (Table 6.3). They explained that the hunters exceed what they need and disregard seasonal restrictions. In addition, it was established that certain cultural practices and beliefs require animal species. For example, it is believed that the white rabbit (*nogwaja*) provides protection from lightning strikes, which has led to a decrease in their numbers over the years.

6.3.5.2. Structural changes to the sacred forests

Mrs Nxumalo and Mr Thwala reported the Funjwa forest became increasingly dense and expanded around the 1950s and 1960s. Mrs Ntuli likewise claimed “it was much more difficult to pass or walk through the forest” when she was young, and according to Mr Zikhali, this indicated that the locals sustainably used and respected the forest. Presently, unsustainable harvesting practices such as the removal of bark, have served as an indicator that the health of the Funjwa forest is declining because fewer large, old/mature trees are found in the forest. Participants believe that the lack of big trees today suggests that trees are not given the chance to mature. The consensus amongst community members was

that trees in the forest have become smaller and the forest is less dense because of unsustainable harvesting practices. The reasons given for unsustainable harvesting included the demand for traditional medicines, the increase in the number of forest users, particularly traditional healers, and infrequent rainfall. The elderly participants further felt that the rise in fraudulent *isangoma*, and increasing use by outsiders were contributing factors. Additionally, the surrounding area has seen a significant increase in *Eucalyptus* plantations, which the FG participants believe might be having a negative impact on plant life in the forest. They explained that the *Eucalyptus* plantations have led to lower water levels in Lake Sibaya and the water table which has adversely affected the *uMtimbolo* wetland located at the edge of the sacred area of the forest. The FG participants also felt that the soil was becoming increasingly infertile and nutrient deficient. According to the participants, infertile soils, changes in water levels and the rise in invasive alien species have inhibited forest growth. During the participatory mapping exercise, the participants in Mabasa identified areas surrounding the SF that were destroyed or in the process of being destroyed, e.g., the area surrounding the *umtimbolo* wetland (Figure 6.2). Despite the claims made by the FG participants and the elderly informants, the trend analysis revealed contrasting results. The trend analysis results reveal that the FG participants felt that the forest has expanded over the years (Table 6.3). In contrast, the *Nduna* mentioned that the size of the forest has remained consistent over the years because he felt that local community members have always conserved the forest.

During the participatory mapping, the participants pointed out several canopy gaps on the western side of the (non-sacred) Funjwa forest. The participants stated that these canopy gaps emerged as a result of livestock tracks and grazing. Other participants however stated that the canopy gaps are a consequence of vegetation that was cleared during the 1960s/70s for homesteads which had not yet fully recovered. Furthermore, the western part of the Funjwa forest, i.e., the non-sacred area of the forest, is heavily used as it is in close proximity to the community and is easily accessible. In contrast, participants noted that the forest canopy on the eastern side of the forest surrounding the sacred area seemed intact. This finding correlates to the trend analysis which revealed that the FG participants felt that the forest canopy openings decreased over the two periods.

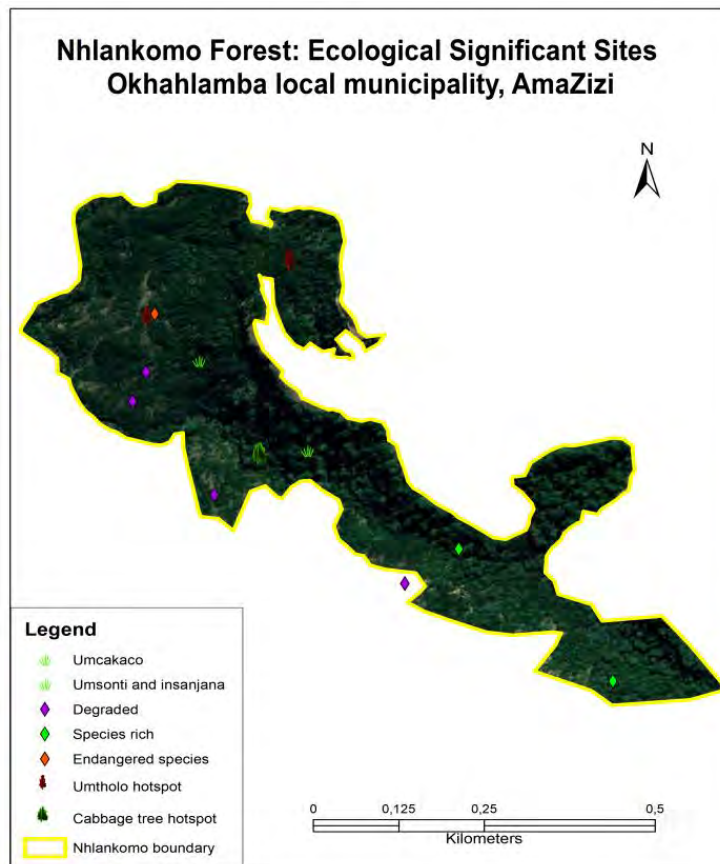
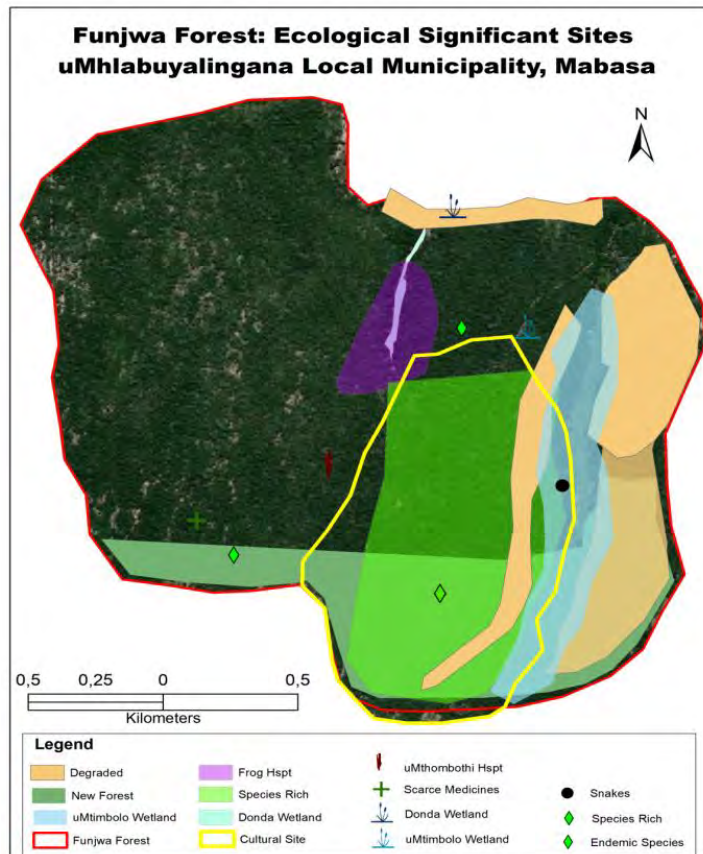


Figure 6.2. Sites of ecological significance in the Funjwa and Nhlangkomo forests.

Table 6.3. Percentage of participants indicating changes in forest condition and composition for the two-year periods 2000-2010 and 2011-2020.

Study site	Mabasa				Manzini			
	Increased	Decreased	Unchanged	Absent	Increased	Decreased	Unchanged	Absent
Year	2000-2010				2000-2010			
Forest size	60	35	5	0	35	40	25	0
Forest canopy opening	5	65	25	5	45	30	25	0
Plant composition	60	30	10	0	45	0	50	5
Animal composition	50	50	0	0	5	60	30	5
Year	2011-2020				2011-2020			
Forest size	90	10	0	0	40	60	0	0
Forest canopy opening	10	90	0	0	35	40	25	0
Plant composition	50	40	10	0	25	60	15	0
Animal composition	20	80	0	0	40	55	5	0

Due to the exclusion of locals from the *Hlathi lama Khosi*, the elderly and FG amaZizi participants were unable to comment on the condition of the SF. But the general consensus was that the forest is well conserved and in good health because of its restricted access that has been maintained. A minority of FG participants stated that aside from the endangered species listed (Section 6.3.5.1), the Nhlankomo forest has not experienced any major changes. However, according to the *Nduna*, the forest is not thriving due to over-harvesting and the changes in weather being experienced in the area. Similarly, the majority of the FG participants expressed concerns about the forest appearing to be less ‘healthy’. The effects of soil erosion in the forest were cited as the contributing factor to its poor condition and suggest that the forest is not well protected. Moreover, the ward councillor mentioned that increased accessibility to the forest, for example, increased forest paths and houses that are built closer to the forest, is believed to be undermining the forest condition. During the participatory mapping, the amaZizi FG participants identified a degraded area situated on a gentler slope close to the forest edge that has been under heavy use (Figure 6.2). Participants further explained that greater access to the forest has exacerbated issues such as soil erosion and invasive alien species, which result in infertile soils and inhibit tree growth. These findings concur with the trend analysis (Table 6.3), which revealed that the FG participants felt that the forest size has decreased over the two periods. However, the participants felt that forest canopy openings decreased during the second period (Table 6.3) even though they claimed that there has been uncontrolled movement of livestock into the forest. They explained that this uncontrolled movement has contributed to soil erosion. In terms of the invasive alien species, the participants stated they impact water sources which are already affected by the changes in rainfall. Additionally, participants explained that frequent fires and heavier rainfall have affected plant growth. The participants further pointed out that plants along the forest edge are of inferior quality, being less healthy, not as good in terms of their growth or usefulness, compared to plants found in the interior of the forest. Moreover, the lack of respect for traditional laws, as explained by the participants, has resulted in the poor health of the Nhlankomo forest. Fires are also now being burnt outside the prescribed burning period, and grass is being cut outside permitted zones. Fences and stones from erosion walls are being stolen.

6.3.5.3. Land use and land cover analysis: forest cover

Table 6.4 shows the final output of the supervised classifications of the three images of the SFs and the NSFs for Mabasa and Mazizini for five landscape metrics.

2.3.3.2.1. Land use and land cover change analysis

Change detection was carried out using supervised classification of two forest classes (forested and degraded), based on the multispectral signatures from field-verified training sites. To ensure the analysis focused only on forested areas, non-forest land covers such as wetlands and roads were digitised and excluded, so that degradation analysis was applied only to pixels mapped as forest. The visual analysis (Figure 6.3) of the LULC data illustrates that there are several canopy gaps (degraded areas) in the non-sacred area of the Funjwa forest. Although the visual analysis (Figure 6.3) and the change detection analysis suggests that the area of the forest cover for the SF has increased from 2010 to 2022, indicating expansion of the forest, the landscape proportion remained relatively stable for the years 2016 and 2022 (Table 6.4). Whilst the forest cover concurs with the FG participants' belief that the forest canopy openings decreased for both periods and that the forest has expanded over the years in Table 6.3, the landscape proportion coincides with the *Nduna*'s claims that the size of the forest has been consistent over the years. Edge density has decreased from 0.07 to 0.01 m.m⁻² which also suggests that the SF patch has remained consolidated or less fragmented over the years. The significant value for the accuracy assessment reflects a minimal real difference between the classification done in this study and the reference data.

A decreasing edge length over the years may also suggest shrinkage, however, edge length alone merely indicates the total boundary length irrespective of the size of the landscape. Therefore, depending on forest patch size or the number of patches per class, decreasing edge length may suggest forest shrinkage or less fragmentation. In this way edge length in relation to the number of forested patches (Table 6.4) provides more confidence in its interpretation, which suggests that a smaller number of patches of forest have merged. The decrease in the number of forest patches and edge length strongly suggests less fragmentation, with fewer forest patches and reduced boundaries. The merging of forested patches contributes to a larger and more continuous patch. Likewise, the degraded land cover for the non-sacred area of the forest has decreased over the years (Table 6.4), which coincides with the landscape proportion of the degraded forest even though the proportion for the forested area has remained relatively stable over the years. Finally, edge density for the forested areas of the non-sacred forest illustrates that the forest is less fragmented, strengthened by the edge length and the number of patches that have also decreased, indicating that the non-sacred area of the forest is becoming more consolidated.

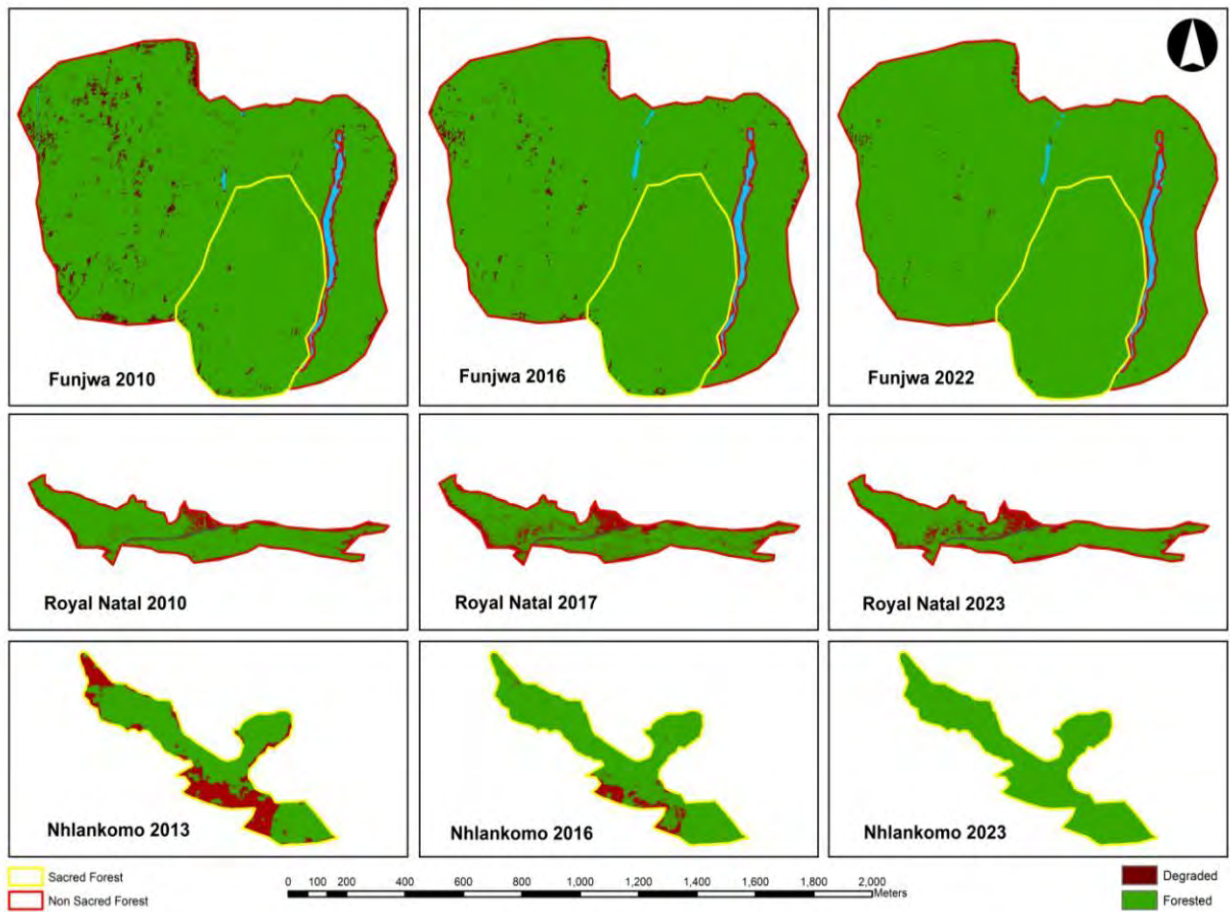


Figure 6.3. Visual analysis illustrating forested and degraded land cover over the three years for the Mabasa and Mazizini paired sites.

The visual analysis for Mazizini (Figure 6.3) of the LULC data does not reveal many canopy gaps for both the Nhlangkomo forest and the reserve forest. The increase in forest land cover of the Nhlangkomo forest (Table 6.4) contradicts the FG participants' claims that the forest has decreased in size over the years (Table 6.4). Like Mabasa, the change detection analysis suggests that the area of the forested land cover for the Nhlangkomo forest has increased, which coincides with the landscape proportion increase of 0.07% from 2013 to 2023 (Table 6.4).

Table 6.4. Landscape metrics reflecting the trend for forest condition for the paired site in Mabasa and Mazizini over the years with an overall accuracy of 98% (using a confusion matrix accuracy assessment for the land cover classification)

Mabasa							
Site	Class	Year	Land cover (m ²)	Landscape Proportion (%)	Edge length (m)	Edge density (m.m ⁻²)	Number of Patches (n)
Sacred	Forested	2010	2,217,939	65	169,050	0.07	302
		2016	2,271,274	66	62,664	0.03	302
		2022	2,485,286	67	42,784	0.02	115
Non-sacred	Forested	2010	6,013,136	44	749,950	0.11	2,448
		2016	6,296,829	46	314,222	0.04	2,087
		2022	7,181,083	49	213,524	0.03	564
Sacred	Degraded	2010	141,477	4	164,044	0.07	11,930
		2016	104,545	3	58,352	0.02	2,938
		2022	58,982	2	37,080	0.01	2,783
Non-sacred	Degraded	2010	949,187	7	745,012	0.11	38,695
		2016	709,206	5	311,130	0.04	11,296
		2022	324,095	2	199,162	0.03	10,725
Mazizini							
Site	Class	Year	Land cover (m ²)	Landscape Proportion (%)	Edge length (m)	Edge density (m.m ⁻²)	Number of Patches (n)
Sacred	Forested	2013	78,672,672	18	316,116	0.00	310
		2016	114,899,004	23	325,248	0.00	162
		2023	125,616,852	25	142,584	0.00	20
Non-sacred	Forested	2010	15,675,156	5	709,596	0.01	2,668
		2015	87,722,388	26	2,142,024	0.02	368
		2023	544,428	7	100,848	0.03	1,025
Sacred	Degraded	2013	34,397,424	8	362,304	0.00	444
		2016	11,091,492	2	277,080	0.00	743
		2023	291,456	0	31,152	0.00	299
Non-sacred	Degraded	2010	106,090,596	31	675,000	0.01	350
		2015	34,066,764	10	2,030,148	0.02	3,423
		2023	2,416,860	29	91,284	0.03	213

These findings correlate with the decline in the proportion of degraded cover of the Nhlangkomo forest, where despite the edge density showing no change, the decreasing number of forest patches and edge length suggests that the forest has fewer fragments (Table 6.4). This supports the decline in forest canopy openings during the second period from the trend analysis. The edge length of the degraded cover also significantly decreased over the years. Similarly, the non-sacred reserve forest illustrates the merging of forested patches, contributing to a larger forest patch from the years 2010 to 2023. The reserve forest edge length decreased quite significantly from 709 596 m to 100 848 m for the years 2010 until 2023. Therefore, the decrease in the number of forest patches and edge length suggests less fragmentation in the reserve forest as well. However, the size of the reserve forest decreased over the years.

6.4. Discussion

6.4.1. The influence of socio-cultural shifts on forest use and dependence

6.4.1.1. Forest use

Although the sacred Funjwa forest is supposedly reserved for the royal family, like many other SFs (Shengii, 2012; van Andel, 2012; Udeagha *et al.*, 2013; Mahaseth *et al.*, 2023), use in the sacred area is permitted. Two aspects have been identified as shaping forest use. First, ancestral spirits are believed to influence forest users by appearing to them as a reminder of the significance of the site and to ensure judicious use. Ancestral apparition serves to reinforce cultural customs and minimise violations of taboos. Likewise, ancestral spirits are known to serve as guardians of SNS in ensuring respect and that a harmonious relationship is maintained between the people and the sacred place (Byers *et al.*, 2001). Second, the expectation that nature ought to be respected irrespective of its sacred status. Hence, the claims of similar use in the sacred and non-sacred areas of the Funjwa forest. Therefore, indicating that the veneration of SFs is not always due to their sacred significance (Byers *et al.*, 2001; Allendorf *et al.*, 2014), but because locals believe they need to respect all forms of nature. On the other hand, in Mazizini, the *Hlathi lama Khosi* is reserved for the royal family. The Mazizini SF resembles other sacred sites that are restricted to only certain people (Oviedo and Jeanrenaud, 2007). The Nhlankomo forest is also meant to be restricted from use as it is considered culturally significant, however, it is used by locals for various purposes (Chapter 5).

6.4.1.2. Forest use changes

Most of these drivers of change have influenced the use of ES benefits offered by the SFs, which consequently has affected their availability. The use of fuelwood was a significant part of the locals' daily lives, particularly before the advent of electricity in both study areas. As such, harvesting practices are believed to have changed because of the increased availability of fuelwood in the forests, which contradicts Soury (2007) who claimed that the dependence on forests for fuelwood across Africa will continue to grow with the population. Like the transition in energy, *muthi* use decreased in both communities during the early 2000s due to the establishment of clinics in the area. However, there has been a resurgence in demand for traditional medicine, which coincides with the notions of health and healing attached to them (Reihling, 2008). This resurgence is familiar to South Africa's nation-building project that aimed to promote the revitalisation of local cultural heritage and knowledge considered the "African Renaissance" (Reihling, 2008). However, *izangoma*, including the emergence of "fake *izangoma*", have been monopolising the traditional medicinal trade because of the local cultural renaissance and renewed notions in traditional treatments. The belief that the sacred Funjwa forest has very powerful *muthi*, as compared to other sites in KZN, has also attracted outsiders seeking to maximise their profits. Outsider use of traditional medicinal plants is a concern shared in Ghana as a consequence of the high cost of health (Nganso *et al.*, 2012). The exploitative use by traditional healers in the Funjwa

forest, particularly by outsiders, challenges the expectation of inherent respect for nature and further supports the claim that outsiders do not share the same values that local community members have.

The influence of modernisation on local practices also resulted in a shift from traditional homesteads to modern houses being built in both communities. The establishment of local stores supported this change. In contrast to the Mabasa and Mazizini rural communities, which have been influenced by Western architecture, Soury (2007) reported that in rural areas in Ouémé valley, the harvesting of wood from the SFs for building traditional houses remains common. However, local communities in this study increasingly prefer constructing modern houses made with blocks and roofing tiles, driven by considerations such as durability, ease of maintenance, etc. Interestingly, the availability of building poles decreased in Mazizini because community members continued to harvest them to be sold. The establishment of local stores also affected other forest uses, including the harvesting of funeral wood for burials in Mazizini. This is in contrast to the Iyingwe, Isiugwu and Ajana SFs in Inyi, Nigeria where trees are strictly prohibited from being hacked or felled unless necessary for religious purposes or activity, i.e., including funeral rituals (Ejikeme *et al.*, 2022). The shift from harvested wood needed for funerals to store-bought reflects changes in the economic realities of the amaZizi people, including their local purchasing power. Setati (2022) further noted that formal retail in rural communities offers choices that were not available before and reflects the contribution to the economic welfare of the community.

Setati (2022) shared that the poor members of a community usually grow all or some of their food. Likewise, community members in Mabasa have been growing their own crops in the Funjwa forest. These forest community crop gardens have been affected by the establishment of local stores. In addition, locals in Mabasa and Mazizini foraged for wild fruits and some members of the community hunted birds for consumption, but this practice changed with the increased introduction of local stores. Personal factors such as food preferences have also affected farming practices, evident in the decline in community gardens, foraging and the consumption of traditionally sourced foods in both communities. The shift in preference has been further compounded by the younger generation's lack of interest in traditional foods, either due to unawareness or their different taste preferences as well as a lack of farming. This deduction concurs with Bharucha and Pretty (2010) who likewise recorded changes in preference and engagement in traditional lifestyles amongst the younger generation. In terms of environmental factors, the proliferation of invasive alien species and the effects of climate change have affected subsistence crop farming and foraging for wild fruits. This highlights the environmental challenges faced in sustaining traditional food sources, as it has been noted to affect the availability of food, particularly in rural areas (Machete, 2020). Similarly, in Mabasa, the minority's view regarding the reduced availability of wild fruits was attributed to seasonal changes and climate change. These findings reveal how environmental factors are impacting the availability of traditional food sources. More specifically in the context of food security, the convenience offered by shops, which is considered another personal factor, has influenced household or subsistence farming activities (Setati, 2022). As more local stores were established in the communities, locals engaged less in growing their crops in the

community gardens, whilst more attention was given to growing within their homesteads. The rise in home gardens resulted in the use of fences to protect their crops from roaming cattle. Likewise, four communities in Nepal have been fencing their home gardens to protect their gardens from wild and domesticated animals (Gautam *et al.*, 2006). Locals also began fencing their properties for security reasons. However, as fencing became increasingly popular, fewer people harvested fencing wood from the forest because local stores provided access to fencing poles.

Local stores also influenced the use of crafts in both communities. The reduced need for handmade crafts resulted in the increased availability of crafting materials in the Funjwa forest because of changes in consumer preferences. The continued lack of craft-making was attributed to the absence of tourism in the community. In contrast, in Mazizini, the rise in tourism opportunities contributed to the demand for crafting material. Similarly, it has been recorded that the SFs in Inyi, Nigeria, were used by locals who sold their crafts as souvenirs to tourists (Ejikeme *et al.*, 2022). The increase in tourism also resulted in some amaZizi community members becoming tour guides, suggesting a shift towards a tourism-based economy. Some studies have acknowledged how SFs offer ecotourism opportunities (Ormsby and Edelman, 2010; van Andel, 2012). In Mabasa, responses about tourism with reference to the game reserve varied because of the attendance of a community representative at one of the four FG workshops. The presence of the community representative highlighted the complex social dynamics at play. Nonetheless, tourism during the first period was short-lived given the closure of the game reserve that impacted tourism opportunities. The absence of such opportunities has been echoed in some sites in Nigeria where there is currently “no tourism development going on in the area” (Ejikeme *et al.*, 2022: 15).

In terms of spirituality, it was found that in both Mabasa and Mazizini, there are diverse ways in which the local communities culturally and spiritually engage with the Funjwa and Nhlinkomo forests, respectively. For both communities the forests are more than just physical spaces with biophysical resources; they are manifestations of spiritual significance that are valued by the local people (Chapter 5). Wild *et al.* (2010) acknowledged that SFs provide opportunities for spiritual interactions between humans and their landscape. The Funjwa forest was also acknowledged for the psychological and emotional benefits they offer, thereby reflecting the intrinsic connection between the community and their natural environment. In Roux *et al.*'s. (2022: 2) comparative study of sacred forests in Europe and Asia they document that for many residents there who experience “serenity and awe while walking in the forest”. This concurs with the experience of some of the FG participants in the Funjwa forest. According to Roux *et al.* (2022), the number of believers or individuals who visit the forest for spiritual purposes serves as an indicator of the spiritual relevance attributed to a site. Based on this, the number of believers visiting the SF may allude to the understanding that both communities perceive sacredness differently. However, both communities have seen a decline in the number of people praying in the forest and the number of rituals being conducted in the forest. Apart from the Funjwa SF offering various forms of spiritual healing or upliftment through praying, meditation, cleansing rituals, and ancestral

connections, the forest is meant to only be used by the royal family for ancestor rituals. The ancestral commemoration rituals and ceremonies used to be conducted annually or as in the case of Babalola *et al.* (2014), when the need arises, e.g., during times of drought, but this is no longer the case.

Lastly, the exclusion of cattle in Mabasa was another knock-off effect of tourism. The exclusion of cattle due to the establishment of the game reserve aligns with the grievances raised by participants in accessing and using the forest (Chapter 4). Similarly, in northeastern Tanzania, pastoralists owning cattle were no longer allowed to make use of the grazing land when the Mkomazi Game Reserve (MGR) was established (Wickama *et al.*, 2005). On the other hand, in Mazizini, the decline in cattle grazing in the Nhlangkomo forest was attributed to uncontrolled grazing by goats which has had adverse effects on the environment, e.g., soil erosion and degradation of grasslands. A similar sentiment was expressed by Soury (2007) in a study of SF in the Ouémé Valley, Benin, who explained that grazing in forested areas destroys plant and tree foliage, as well as their root systems, both of which contribute to preserving soil health and serves as a barrier against erosion.

6.4.1.3. Changes in forest dependence

Unlike my study areas, the extensive use of SFs in Inyi, Nigeria, for a range of benefits has intensified over the years and has put pressure on species, particularly in areas that are easily accessible (Ejikeme *et al.*, 2022). The SFs in Inyi were used for the collection of deadwood, green leaf fodder and wild fruits, cattle grazing and the felling of trees for timber and fuelwood (Ejikeme *et al.*, 2022). In contrast, in Mabasa and Mazizini there has been a shift in forest use from general domestic needs to mainly outsiders coming in to harvest *muthi* for commercial purposes. The initial use and dependence on the Funjwa and Nhlangkomo forests was a consequence of the lack of development and service delivery in these communities. The domestic use and reliance on the forest concurs with findings reported by Soury (2007), in which forest dependence is influenced by the level of poverty. The changes in resources that the locals in Mabasa and Mazizini depend on in both forests is due to developments and greater access to services in the broader community.

Although both communities experienced a spike in *muthi* use in the second period, the number of forest users and their dependence on the forests only increased for the Funjwa forest. The observed increase in dependence on the Funjwa forest for medicinal purposes is consistent with Grace *et al.*'s (2002) findings of a broader rise in *muthi* demand across South Africa. This increased use of *muthi* is attributed to two reasons. First, increasing demand from urban areas. Second, the number of “traditional healers” seeking economic opportunities over the years has increased. Reihling (2008) found that traditional medicine, particularly in South Africa, is not only valued for its healing properties but also for its commercial purposes. *Muthi* harvesting has been acknowledged as compensation for unemployment as participants emphasised the spike in the number of traditional healers. Large quantities of traditional medicinal plants in South Africa are used and traded in markets across the country (Ngwenyama, 2022). Reihling (2008) notes that the trade in *muthi* forms part of the “hidden economy” where individuals use *muthi* for income generation, particularly for rural households. This is evident in both communities in

this study. Ngwenyama (2022) shared that although it may be assumed that an increase in access to Western health care would reduce the use and trade in *muthi*, this has not been the case because of its affordability and accessibility. Also, *muthi* use is deeply rooted in cultural beliefs and its connection to ancestors which makes them more acceptable (Ngwenyama, 2022). Soury (2007) acknowledged the potential of other natural resources as a source of income for the local rural economy such as harvesting of wild foods, fuelwood, construction material etc., but these were particularly acknowledged as being viable by the Mabasa participants. The lack of diversified livelihood options may be that the economic value surrounding the trade in other resources has not been realised in the community. For example, trade in wild foods has been acknowledged as an important supplement to general incomes, critical during economic hardship (Bharucha and Pretty, 2010). Regardless of the community being classified as poor (Chapter 2), selling crafts may not be seen as the most viable option because (1) crafts are predominantly sold to tourists and travellers, and (2) currently no tourism opportunities exist in Mabasa. In contrast, the amaZizi participants acknowledge craft-making, the harvesting of building wood and fuelwood as income generation opportunities. As such, the Mazizini community like that of the community in Benin (Soury, 2007), aligns with Ejikeme *et al.* (2022: 14) wherein “the collection of forest resources helps to alleviate poverty and sustain their livelihoods”. Bharucha and Pretty (2010) pointed out that the relationship between wealth and resource use does not always correlate. They added that this lack of correlation is possibly due to the influence of context-specific social and economic factors such as cultural preference (Bharucha and Pretty, 2010).

In Mazizini, the COVID-19 pandemic resulted in an increase in forest users in 2020 for domestic needs. This suggests the need to overcome economic hardships as it reinforces the idea that indigenous forests continue to serve as a vital safety net during crises (Lawes *et al.*, 2007; Kalaba *et al.*, 2013). The number of users dependent on the forest for *muthi*, particularly for economic gain, has raised concerns about unsustainable harvesting practices and the preservation of medicinal plant species. It is believed that almost all *muthi* found in urban markets in South Africa are unsustainably harvested (Reihling, 2008).

6.4.1.4. The status of sacred forest condition and the biocultural integrity of the communities

Although fuelwood harvest is reduced for both communities, there is still persistent use of fuelwood by community members despite developments and improved living conditions. Continued fuelwood use is primarily due to its affordability and other limitations concerning electricity. Soury (2007) shared that fuelwood use has been progressively replaced by other means for cooking and heating, but the majority of the community of Ouémé Valley still uses fuelwood. Likewise, Shackleton *et al.* (2022) found that despite changing socioeconomic contexts in rural communities, such as post-electrification, over 90% of rural households in South Africa rely on fuelwood to meet all or some of their household thermal energy needs. Similarly, more than half of the households in the community from the Enugu State, South-Eastern Nigeria, use fuelwood as a source of energy for cooking (Ihemezie *et al.*, 2023). However, the impact of this shift in fuelwood use on the condition of the forest is not known.

Grace *et al.* (2002) acknowledged that KwaZulu-Natal is the primary hub for medicinal plant trade for South Africa as well as neighbouring countries. The concern over outsiders in the *muthi* trade has also been expressed by Mahaseth *et al.* (2023: 331), wherein immigrants rarely share "the same cultural and spiritual values" as the local people did for their sacred groves. Outsiders do not respect the cultural or sacred beliefs of the site and often misuse the site (Nyamweru and Kimaru, 2008). Nganso *et al.* (2012) also shared that outsider use often results in the collection of unsustainable or large quantities of plants from the SNS. Like this study, Grace *et al.* (2002) stated that some traditional healers primarily harvest medicines for economic gain in the 'hidden economy' of medicinal plant trade, as opposed to treatment of health-related problems and religious purposes. Harvesting for economic gains is often based on unsustainable harvesting practices, reflecting that the reverence, adherence and sanctity of religious beliefs and customs have been compromised. Such exploitative use corroborates the claim made by Arora (2006) that some SNS communities are subjected to self-interest and unsustainable practices. The exploitation of *muthi* affects the integrity of the forest, i.e., in reference to the endangerment and extinction of some species (Section 6.3.3.2).

Modern influences were evident in both communities and were reflected in the preference for modern houses, which offer greater security. Similarly, Mlambo (2016) found that in several communities in KZN modern houses using corrugated iron roofing are believed to offer better protection and promote security and safety. These changes contributed to reducing timber extraction from the SFs in both Mabasa and Mazizini communities, whilst the residents of Muzarabani, Zimbabwe, recognised the loss of their SFs because they were being thinned or being cut for building materials (Soury, 2007). Furthermore, the increase in the availability of natural resources for thatching and roofing in Mabasa and Mazizini, respectively, illustrates the evolving relationship between traditional lifestyles and modernisation. For instance, Mlambo (2016) found that traditional architecture was not perceived as modern and that most of the participants of the Umbumbulu community in South Africa wanted to modernise, thereby, adapting to their perception of modernity by making architectural changes in their homes. The construction of RDP houses has become the markers of development and as modern houses become more prevalent in Mabasa, the traditional skill of thatching is becoming less practised. This has been contributing to a loss of cultural skills. The shift from traditional homesteads to modern houses in both communities has also significantly impacted traditional practices associated with traditional homesteads and traditional skills. The loss of certain cultural aspects linked to traditional architecture, compounded with the widespread Western influence and the introduction of fencing in both communities, has had broader cultural implications (Chapter 4). These implications include increased segregation within the community and a lack of cohesion. This serves as evidence of an ideological change since an individual's well-being in African communities is meant to be embedded in the ethic of *ubuntu*, concerning the well-being of the community (Rushwaya, 2018). This sense of individualism prioritises personal property and self-interest. Rushwaya (2018) also found that individualistic values were introduced to Africa with the intention of encouraging self-interests, emphasising a shift away from collective or communal values in favor of personal gain and autonomy. In terms of the forest's

ecological integrity, the reduction in harvesting of building materials that are now purchased in local stores is believed to benefit the forest.

Other market-driven preferences have also affected the cultivation and consumption of traditional foods, and signify concerns about the preservation of cultural heritage. Additionally, the availability of commercial food products has contributed to a decline in community gardening practices. Changes in local consumer preferences for store-bought foods or market-driven choices and local dietary changes reflect a shift from traditionally sourced foods. This shift concurs with the global trends concerning the increased dependence solely on store-bought foods, whilst cultivated and wild foods are increasingly disregarded (Bharucha and Pretty, 2010). As communities become increasingly dependent on store-bought goods and move away from land-based livelihoods, traditional knowledge becomes compromised (Bharucha and Pretty, 2010). The systematic review by Malli *et al.* (2023 cited in Manka and Mapadimeng, 2024) on the impact of European colonisation on indigenous communities in North America found significant changes in their indigenous food systems, with many shifting toward store-bought, non-traditional diets. The decline in traditional diets has led to a loss of knowledge regarding crop farming, food preparations, and health benefits associated with these foods. The elders' concerns with regard to the loss of knowledge about crop farming and meal preparation as well as preference for store-bought foods amongst the youth was also a concern shared by Bharucha and Pretty's (2010) study. They found that changes in individual preferences, particularly amongst the younger generation, affect the preservation of traditional knowledge. Likewise, Manka and Mapadimeng (2024) reported that a lack of knowledge and understanding of indigenous foods and their socio-cultural significance and meanings was increasingly evident amongst the youth. A lack of knowledge of traditional foods reported by Manka and Mapadimeng (2024) was deemed crucial because food hold meaning and convey messages about social events and social identity. For example, the elderly participants in Mazizini shared that the loss of traditional foods affects the spiritual connection to ancestors during ceremonies where such foods are essential offerings.

Other broader cultural implications of the change in farming and consequent methods for food preparation like traditional maize grinding were also raised. The loss of traditional maize grinding has affected the storytelling that took place during this time, which undermined knowledge transfer and community bonding. Moreover, Feenstra (2009) noted that the way in which food is grown affects the social and spiritual well-being of a community. The decline in subsistence farming led to changes in social dynamics and has contributed to a sense of individualism. The significance of community support in subsistence farming was also revealed in Machete's (2020) study, wherein some participants shared that society should assist or support them in sustaining their farms. Hence, the shift from community forest gardens, cultivated with the help of the community, to home gardens has led to increased segregation and a lack of cooperation and sharing within the community.

Although the rise in tourism has not had a direct impact on the cultural significance of the Nhlankomo forest, it has resulted in knock-off effects. In Mazizini, the influx of tourists given the adjacent National

Park illustrates how plants used for craft making have shifted from personal use to being monetised. Crafts are sold in the Craft Centre, similar to Nyamweru and Kimaru (2008) who reported that crafts were sold in the hotel gift shops in coastal Kenya. Tourism contributes to the local economies and influences cultural practices in rural communities. However, the sales of crafts in Mazizini have been deemed to have reduced many species used for crafts. With regards to trends in the practice of crafting in Mabasa, store-bought items as opposed to traditionally making them illustrate the extent to which lifestyle changes and the influence of modern consumer culture have affected the community. Setati (2022) shared that formal retail in rural communities reflects the contribution to the economic and social welfare of the community. Interestingly, the brief presence of the game reserve in Mabasa affected cattle grazing in the Funjwa forest. The exclusion of cattle also highlights the conflict between wildlife conservation efforts and traditional livestock grazing practices, which corroborates Muhando's (2005) concerns about growing numbers of livestock, that impede forest regeneration and put pressure on wildlife ranges. In Mazizini, uncontrolled grazing served as a secondary impact exacerbating existing threats to the forest. Likewise, Crovo *et al.* (2021) found that cattle grazing accelerates soil erosion. Uncontrolled livestock in the Nhlankomo forest serves as a possible indicator of the lack of leadership and governance by the TA. Likewise, Byers *et al.* (2001) stated that forest loss was significantly greater in areas with less TA within the post-independent state of Zimbabwe.

Finally, the decline in spiritual and cultural uses of the SFs concurs with Jindra's (2005) findings wherein Christianity within the communities associated with traditional ancestral beliefs have been characterised by changes in rituals and beliefs (Chapter 4). The decline in the number of people praying in the forest and the deterioration in rituals conducted in the Funjwa forest over time highlights the breakdown in biocultural relations in the community. Concerning the decline in numbers, many locals prefer to pray in their homes or at church as opposed to the forest. Ceremonies and rituals are no longer taking place in the SFs in both communities. Similar findings have been recorded by Udeagha *et al.* (2013), where the masquerade ceremony that was regularly practiced by the Ibiono people, is dwindling. Like Mabasa and Mazizini, many of the Ibiono people have adopted Western religion, abandoning most of their ancestral religiocultural beliefs (Udeagha *et al.*, 2013). The loss of ancestral traditional practices in the SFs has a two-fold impact. Firstly, spiritual governance, which is associated with the judicious use of species (Sharma and Kumar, 2021), is not prevalent at these sites because ceremonies for the ancestors are no longer practiced in the forest (Chapters 4 and 5). This is believed to have affected the spiritual potency of the SFs. Secondly, the loss of cultural beliefs and customs, which served to protect SFs for decades (Sinthumule, 2024), now compromises the ecological condition of the forest because users do not fear the spiritual guardians or the TAs.

6.4.2. Environmental changes in sacred forests and conservation

6.4.2.1. The biological diversity of the sacred forests

Many SFs act as sanctuaries for various species and they play a critical role as refugia (Mjoli, 2017). Some SFs may contain species that are threatened or endangered in the surrounding areas (Kamga-

Kamdem, 2010) or contain species that are only found in the SF (Khan *et al.*, 2008; Bhagwat *et al.*, 2005). However, the findings in this study suggest that the SFs do not serve as cultural refugia. The number of species that are considered by participants as endangered due to overuse in the sacred Funjwa forest implies that the forest does not serve a critical role in biological conservation within the landscape. The listed species that are considered endangered in the forest are primarily used for medicinal purposes like *Albizia andianthifolia* and *Psydrax obovata*. The unsustainable use of medicinal plants, therefore, aligns with the increased reliance on the forest for *muthi*. For instance, the increase in traditional healers and the presence of fraudulent traditional healers, as well as exploitative use by outsiders using the SF for economic gain. This in turn highlights the broader issues of the sacred status of the forest undermining its biological preservation, which links to the romanticisation of cultural use. Additionally, the use of plants for rituals may also reflect elements of romanticisation of SFs, a possibility examined in Chapter 5. Findings recorded from other SFs have demonstrated that cultural practices, alone, assist in promoting the conservation of endangered species in SFs in Ghana (Nganso *et al.*, 2012). The ability for this to be achieved in the Funjwa site has been compromised. However, the use of plants as well as the use of specific species like *intelezi* (*Portulacaria afra*) and *ikonono* (*Terminalia sericea*) for the cleansing rituals points to rich ethnobotanical knowledge within the community. Despite the increasing exploitation of the SF for *muthi* that are perceived to have become endangered or extinct in the forest, the trend analysis (Table 6.3) illustrates that plant composition has thrived in recent years in Mabasa. On the other hand, given the restrictions to the *Hlathi lama Khosi*, the potential of the site as a refuge is unknown. In contrast to Mabasa, the amaZizi participants perceive that the endangered species in the Nhlangkomo forest, as listed on the Red List, are becoming increasingly scarce. Nevertheless, the Nhlangkomo forest harbours vulnerable, endangered and protected trees including its respective counterfactual site. This contrasts with Dudley *et al.* (2010) who recorded that threatened tree species are sometimes abundant within SNS as compared to nearby forest reserves. The participants' knowledge about certain species growing at specific altitudes highlights the knowledge that locals have about species locations and suggests a deep understanding of the forest ecosystem.

Both communities reported a significant decrease in wildlife, even though there has been a reduction in hunting. Those who do hunt in Mazizini no longer hunt sustainably, which points to poor traditional governance practices. Similarly, during the early 2000s, the Sungai Sedik people from West Kalimantan, Indonesia, reported that gibbons in the forest reduced in number because of overhunting (Wadley and Colfer, 2004). It was also noted that certain animal species are preferred and targeted for specific cultural practices or due to cultural beliefs or myths, which has led to their endangerment over the years. Alves *et al.* (2013) acknowledged that the use of primates for "folk medicine" may be contributing to their extinction. Likewise, Green *et al.* (2022) found that most *muthi* use is plant-based and is considered to be rapidly expanding in South Africa. This also alludes to the romanticisation of these biocultural communities, which has undermined some biological processes in the forest. This balance is exacerbated by environmental factors such as the rise in invasive alien plants, changes in rainfall and soil erosion, which further stresses the ecosystem (Wild *et al.*, 2010).

The participatory mapping in both the sacred area of the Funjwa forest and the Nhlankomo forest highlights species-rich areas or biodiverse hotspots, such as areas of rich biodiversity, rare or threatened species, endemic species, and areas with threatened habitats. Species-rich areas were primarily located deep into the forest that were considered to be less frequented, suggesting that minimal human interference aids in maintaining biodiversity. The participatory mapping also revealed that species-rich sites coincided with spiritually significant areas of the Nhlankomo forest. However, it could be that this overlap between the ecologically significant areas and the culturally significant sites may be coincidental. For instance, the ecologically significant areas of the forest may be due to its lack of accessibility because they are situated on steeper terrain and are further away from the community. This may play into the fact that prayer sites are often secluded areas, including secluded areas within the forest itself.

6.4.2.2. Sacred forest condition

In Mabasa, the elderly participants mentioned that the Funjwa forest became denser and expanded further during the 1950s and 1960s. Presently, the forest is perceived to be dominated by smaller trees which suggests that the forest is in poorer condition. Reynolds *et al.* (2017) pointed out that beyond environmental factors, human influences also affect SF productivity, species distribution and abundance. Consequently, the socio-cultural associations as the primary reason contributing to protection of the SFs and preservation of SFs across the world (Avtzis *et al.*, 2018; Sharma and Kumar, 2021), have been undermined in this study. In contrast to Mabasa, I concur that the restricted access to the *Hlathi lama Khosi* has been maintained because of the number of other forest patches that exist in the community that provide alternatives for local use. The availability of alternative forest patches has allowed community members to respect the restrictions that have been imposed on *Hlathi lama Khosi*. However, restrictions on accessing the *Hlathi lama Khosi* has limited participants' local knowledge about the ecological condition of the forest, since they have never been inside it. Despite locals not using the *Hlathi lama Khosi*, they believe that the forest is well preserved. Conversely, the Nhlankomo forest is deemed to face challenges due to over-harvesting, invasive alien species and soil erosion. Also, changes in rainfall patterns have increased the risk of already vulnerable sites (Schaaf and Rossler, 2010). For instance, poor rainfall and heavier downpours attributed to climate change have increased the risk to the Nhlankomo forest due to its mountainous location. Land use change is one of the biggest threats most SNS face due to increased developmental activities (Buxton *et al.*, 2022), but this has not been evident in either of these communities because of improvements in service delivery and infrastructural developments in Mabasa and Mazizini. However, increased forest paths and building of houses closer to the forest have raised concern over use in the Nhlankomo forest. This finding concurs with IHEMEZIE *et al.* (2023: 2081), who reported that “encroachment and degradation are occurring in SFs”.

In Mabasa, the non-sacred area of the forest, which is closer to the community and more accessible, displayed more canopy gaps than the sacred area. The gaps may not solely be due to human activities

such as cattle tracks, which were perceived to have impacted canopy development. Instead, these gaps could also be a result of natural factors such as tree falls, fires, storm damaged, etc. In contrast, the sacred area which is further away from the community, showed no visible canopy gaps and appeared to be in a relatively better condition. This aligns with findings recorded by Suchiang *et al.* (2020), wherein the SFs in Meghalaya, India, exhibited higher canopy cover and higher species richness than the community forests, which had wider canopy gaps resulting from frequent anthropogenic and natural disturbances. Degraded areas in the Nhlinkomo forest were located near the forest edge and on gentle slopes reflecting the impact of anthropogenic influence on the forest. Likewise, Reynolds *et al.*'s (2017) study found that forest productivity of the Ethiopian Orthodox Tewahido church forests reduces as the number of edges increases.

6.4.2.3. Status of land cover and structural changes of the sacred forests

One of the main drivers of forest loss is land use conversion such as the conversion of forested land into agricultural and built-up areas. Many African countries have experienced deforestation due to agricultural expansion and logging (Negassa *et al.*, 2020). For instance, the Komto protected forest in Ethiopia has been subjected to logging, exploitative harvesting, and expansion in agricultural lands and built-up areas. These anthropogenic pressures have been depleting forest resources and contributing to forest loss as revealed by the change detection (Negassa *et al.*, 2020). In contrast, the SFs in this study have not seen any land use conversions and have been increasing in size between 2010 to 2022. Similarly, the forested area of the Kailash Sacred Landscape (KSL), in the Indian part of the transboundary landscape, increased over the period between 1995 to 2016 (Hussain *et al.*, 2020). The forest cover was the most extensive land cover class (39%) of the landscape. The reason attributed to the increase in the forest cover of the KSL-India was that the majority of the KSL community was devoted to their local deity, which prohibits the collection of fuelwood and fodder. In contrast, the increase in the forest cover observed in this study cannot be attributed to local traditional beliefs because of the adoption of Western Christian belief by many community members, particularly in Mabasa. Despite the loss of ancestral beliefs and practices, forest cover loss for the sacred area of the Funjwa forest and Nhlinkomo forest was not evident. This contrasts with other studies such as Khan *et al.* (2008) Baidya *et al.* (2020), which found that changes in local religious practices, taboos and attitudes toward the SFs have significantly impacted forest size and structure. However, in this study, changes in forest use, and community-led conservation efforts in the Mazizini community, may help explain the absence of expected forest degradation or forest cover loss in the SFs. Additionally, the difference in the type of use between the study by Negassa *et al.* (2020) and this study was noted. Negassa *et al.* (2020) indicated rapid loss of dense forest cover was attributed to logging for charcoal and timber production, agricultural purposes and income generation from forest resources, whilst a lack of forest cover loss in the Funjwa and Nhlinkomo forests may be a result of lower levels of timber harvesting and land conversions. However, despite participants' concerns about *muthi* harvest which has contributed to the higher dependence on the forest during the second period, the trend analysis revealed that it did not undermine plant composition or forest condition.

6.4.2.4. Understanding sacred forest connectivity and intactness

The sacred area of the Funjwa forest as well as the Nhlankomo forest illustrated greater intactness as per the edge length and number of patches than their counterfactual sites. The reason for the greater forest intactness of the sacred area of the Funjwa forest may be a result of the sacred area being almost completely embedded within the non-sacred area of the forest. Additionally, cattle tracks and the impacts of homesteads once built in the non-sacred area of the forest were said to be responsible for the canopy gaps. Crovo *et al.* (2021) also found that uncontrolled livestock grazing in conjunction with other anthropogenic pressures affects both soil health and forest coverage. On the other hand, both the Nhlankomo forest and the reserve forest are isolated forest patches, however, a road cuts through the reserve forest. As a result, the Nhlankomo forest illustrated greater intactness. Usually, small and isolated fragments are vulnerable to edge effects like invasive species or fires (Rath *et al.*, 2020). In Mazizini, the Nhlankomo forest (13 ha) and reserve forest (23 ha) are relatively small in size, and according to Rath *et al.* (2020), will be subjected to high levels of edge effects. However, both forests have been experiencing lower levels of fragmentation over the years. The lack of edge effects in Cardelús *et al.*'s. (2020) study of small, isolated fragments of the sacred church forests in the South Gondar Administrative Zone (SGAZ), Ethiopia, may be attributed to the SF management practices, which they felt helped mitigate the impacts of fragmentation and small size.

6.5. Conclusion

Although use is permitted in the SF in Mabasa, the extent of this use still appears to be influenced by its sacred significance and the cultural customs associated with it. In contrast, in the Nhlankomo forest, situated on the same mountain as the *Hlathi lama Khosi*, there has been an increase in use. This rise in use can be attributed to the weakened traditional connections to the forest, yet the rules, regulations and taboos prohibiting use in the *Hlathi lama Khosi* remained intact, preserving the forest's sacred status. The chapter illustrates that the Funjwa and the Nhlankomo forests were used for various basic needs, livelihoods, spiritual needs and cultural purposes during the early 2000s. Over the years, in response to socioeconomic changes in development and service delivery in these communities have resulted in locals becoming less dependent on the forest for their everyday needs. As such, forest use and consequent availability of ES have been influenced by modernisation, service delivery, infrastructural development, and other factors such as consumer preference, poverty, economic independence, opportunism, Western values and ideologies. Changes in forest dependence indicate an evolving relationship with the forest that is complex and dynamic between forest conservation, community needs, and economic factors at local and broader scales. Some forest use changes, including their drivers of change, have resulted in broader and more complex implications on the cultural integrity of the community and the SF. Architectural and dietary changes have affected ancestral connections of certain cultural practices, cultural identity, traditional knowledge and skills and communal living. The adoption of Western practices like fencing highlights the deterioration in collective responsibility and traditional ideologies such as *ubuntu*. In addition, the decline in the spiritual use of the Funjwa forest has affected the spiritual potency of the forest, which played a key role in ensuring judicious use and the preservation

of the sacred site. This has led to the increasing exploitative use of the forest for *muthi*. The increased use of *muthi* and harvesting of crafting material as livelihood alternatives and as economic incentives in overcoming poverty further indicate that changing socioeconomic conditions are driving in shifts in cultural values.

The changes in forest use and the drivers of these changes have also impacted the ecological integrity of the forest. The transition from subsistence use to commercial use of several resource has raised concerns about over-exploitation. At the species level in Mabasa, despite the trend analysis indicating that plant species composition has increased over the years as well as the participatory mapping of species-rich areas, various plant species were perceived as endangered or declining because of medicinal uses. In contrast, the trend analysis for plant species in Mazizini revealed that they have decreased. Most of the plant and animal species that were listed are targeted for cultural purposes, which has made their survival increasingly precarious. Consequently, these sacred sites do not play a role as a refuge or sanctuary for some species in high demand. Although participants shared concerns about the condition of the Funjwa and Nhlinkomo forests because of the extent of harvesting and lack of management by the TA, the change detection analysis concerning forest size reveals that the forests are expanding and have also become less fragmented. One of the reasons for this is that there have been no land use conversions which has been attributed to forest loss in many parts of the world. Despite the significant changes in socio-cultural and economic dynamics of the communities these forests are in good condition due to several forest uses that have decreased. However, the high levels of anthropogenic pressure for *muthi* harvesting, especially by outside communities in Mabasa, puts intense pressure on certain species that are targeted. Conservation efforts need to be strengthened to safeguard these species such as forest management strategies regulating the number of species harvest.

Chapter 7: Ecological assessment of the sacred forests

7.1. Introduction

Sacred forests (SFs) have been identified as one of the most widely practiced forms of traditional conservation (Onyekwelu *et al.*, 2022). Despite the recent interest in SFs as alternative conservation models, few studies have investigated their sustainability and conservation role in South Africa. A few studies have examined SFs in South Africa, each with a particular focus. For example, Sinthumule and Mashua (2020) explored how traditional ecological knowledge (TEK) and community attitudes contribute to SF protection. Constant and Tshisikhawe (2018) focused on ethnobotanical research, examining how plant knowledge is accumulated, practiced and transmitted, including the barriers to knowledge transmission and implications for plant resource management. Another study by Sinthumule (2022) investigated the role of spirits as active agents of governance and management of SNS, and how communities perceive these spirits for SNS protection. While these studies provide valuable insights into specific components of SF conservation, they remain thematically narrow. This study differs by adopting the broader biocultural approach that integrates ecological integrity with cultural heritage. It situates SFs within the historical, political, socioeconomic contexts to show how these have shaped

community values, beliefs and practices. It further situates SFs as potential Other Effective Area-Based Conservation Measures (OECMs), linking biodiversity conservation, cultural heritage and community agency. Hence, the study offers a more integrated understanding of both ecological and cultural dimensions of conservation. By evaluating the ecological condition of the SFs, the extent to which cultural practices, such as restricted access, have changed or diminished can be inferred. For instance, vegetation structure and signs of human interference serve as ecological indicators of shifts in cultural reverence and traditional management. In this context, reduced human disturbance appears to be associated with a more mature tree layer, reflecting longer periods of regeneration and reduced extraction pressure. For example, cultural practices in a SF in Odisha, India, have significantly contributed to the conservation of vegetation structure and plant diversity in comparison to forests exposed to greater levels of anthropogenic influence (Rath *et al.*, 2020). However, SFs that have been protected by local communities as reported in other contexts (Baidya *et al.*, 2020; Rath *et al.*, 2020), have been undermined in Mabasa and Mazizini. The SFs in this study, like several other studies (Kandari *et al.*, 2014; Ballullaya *et al.*, 2019; Onyekwelu *et al.*, 2022; Sinthumule, 2022b), are under various threats and face persistent challenges. Sinthumule (2022b) shared that we are in an era where the majority of sacred sites are at risk because of rising human activities. The erosion of traditional governance, beliefs, reverence and associated taboos as protective measures, crucial for maintaining SF, pose the greatest threats to their conservation (Nganso *et al.*, 2012). Given the myriad of socio-cultural challenges threatening the SFs in Mabasa and Mazizini, this chapter aims to determine whether the cultural values have benefited SF integrity by assessing the ecological condition of the forest. This evaluation will help understand the broader implications of diminished cultural practices and values outlined in Chapters 4 and 5, respectively.

As has been established in Chapter 6, local reliance on the SFs for daily needs has decreased. This reduction potentially leads to less tree felling and reduced changes in forest cover (Baidya *et al.*, 2020), which is likely to be beneficial for biodiversity conservation. However, the increased demand for medicinal plants in both sites indicates a shift in forest use dynamics that could impact conservation strategies. This shift also alludes to concerns highlighted by Nganso *et al.* (2012) in that the management of SFs requires more than just traditional systems, and should be complemented by solutions that will address socioeconomic challenges faced by local communities. This chapter suggests how local socio-cultural changes impact forest conservation (Khan *et al.*, 2008). These insights help in understanding the protective effects of cultural reverence on biodiversity and can help to inform forest management and conservation strategies, i.e., promoting their sustainability amid changing cultural and socio-economic contexts and forest use dynamics. The analysis offers valuable insight to guide potential interventions, and highlights areas to enhance, restore or preserve the forest ecosystems.

As such, this chapter provides a comprehensive analysis of various ecological indicators of the SFs. The chapter evaluates biodiversity (species diversity, richness and composition of woody plants), structure (tree size distribution, plant density), disturbance (harvesting and other disturbance forms looking at

dung density, deadwood and ground cover) and wildlife presence (tracking signs of animals such as dung). The analysis compares the health and functionality of the SFs to non-sacred forests (NSFs) to determine whether the sacred status of the forests plays a significant role in conserving the biological diversity and the ecological condition of the forest.

7.2. Objective, research questions and methods

The objective of the chapter was to determine the current ecological condition and integrity of the SFs. To achieve this objective the following research questions were posed:

1. What do the key ecological indicators (species diversity, species composition, plant density, and population structure) reveal about their conservation value?
2. Given the socio-cultural changes, what level of disturbances are the SFs facing?
3. How do the disturbances affect the regeneration, population stability and species diversity of the SFs?
4. How does the ecological condition of the SFs compare to the counterfactual NSFs, and what does this reveal about the role of sacredness in conserving biodiversity and forest health?

To achieve the objectives for this chapter ecological field surveys (Section 2.4.2.1) were carried out. The surveys were conducted in the paired SFs and NSFs in both communities, i.e., the non-sacred area and sacred area of the Funjwa forest in Mabasa, and the non-sacred reserve forest and the culturally significant Nhlankomo forest in Mazizini. Refer to Table 2.6 for the statistical analysis applied to their corresponding ecological variables.

7.3. Results

7.3.1. Forest structure and population stability

7.3.1.1. Plant density

Across the 13 plots in the Nhlankomo forest and the 23 plots in the adjacent non-sacred (Royal Natal) forest, there were 263 and 581 adult woody stems, i.e., with a basal diameter ≥ 5 cm. Density for adult woody stems in the paired Mazizini site (Table 7.1) was not significantly different between sacred and non-sacred forests ($t = 1.80$, $df = 34$, $p = 0.08$). This was the same for the density of juvenile stems (< 5 cm diameter, $t = 0.99$, $df = 34$, $p = 0.33$), in which there were 667 and 1 411 juvenile stems, respectively. Similarly, there was no significant difference ($w = 168.5$, $p = 0.54$) for all woody plants, i.e., excluding stems that were dead or 100% harvested, in the paired Mazizini site (Table 7.1).

On the other hand, in Mabasa, across the 18 plots in the sacred area of the Funjwa forest and 24 plots in the non-sacred area, there were 317 and 452 adult woody stems, respectively. The difference in density of adult woody stems between the sacred and non-sacred sites was insignificant ($t = 0.53$, $df = 40$, $p = 0.60$). Similarly, the density of juvenile stems between SF and the NSF was not significant ($t = 1.83$, df

= 36, $p = 0.08$), in which there were 796 and 521 woody stems, respectively. The plant density of all woody plants (Table 7.1.) was also not significantly different ($t = 1.80$, $df = 36$, $p = 0.08$).

Table 7.1. The density of the plant categories in the paired sacred and non-sacred forests in Mazizini and Mabasa.

Plant category	Plant density (ha^{-1})			
	Mazizini		Mabasa	
	Non-sacred	Sacred	Non-sacred	Sacred
All plants	40 868 \pm 20 645	34 090 \pm 12 914	18 221 \pm 8 345	29 400 \pm 26 423
Adults (≥ 5 cm)	2 526 \pm 903	2 023 \pm 591	1 883 \pm 820	1 761 \pm 606
Juveniles (<5 cm)	38 342 \pm 20 504	32 067 \pm 12 928	16 281 \pm 8 337	27 639 \pm 26 363

7.3.1.2. Size class distribution

The basal diameter of woody stems ranged from <5 cm to 450 cm and from <5 cm to 300 cm in the Nhlankomo and Royal Natal forests, respectively. The differences between the size classes for the paired sites were insignificant for woody stems including ($\chi^2 = 1.43$, $df = 8$, $p = 0.99$) and excluding ($\chi^2 = 4.90$, $df = 8$, $p = 0.67$) the juvenile plants. Similarly, in Mabasa, there was no significant difference between the size class distribution of woody stems including ($\chi^2 = 7.47$, $df = 8$, $p = 0.49$) and excluding ($\chi^2 = 4.65$, $df = 7$, $p = 0.70$) the juvenile plants. In Mabasa, the basal diameter of woody plant stems ranged from <5 cm to 127 cm and from <5 cm to 425 cm in the sacred and non-sacred forests, respectively. Although the proportion of stems in each size class was not statistically different between both paired sites, both populations followed a similar trend with the smaller size classes dominating.

The size class distribution for both the paired Mazizini (Figure 7.1a) and paired Mabasa (Figure 7.1b) sites displayed an inverse j-shaped curve. The general trend displays a decrease in the proportion of stems in each size class as the diameter increases. The level of recruitment for both paired sites was high and displayed a stable population with a subsequent decrease in the number of individuals in the subsequent size class (5-9 cm). The paired Mazizini forests displayed a large decrease between the juvenile stems and the first adult-size class (5-9 cm) (Figure 7.1a), which was also evident at Mabasa. Even though the proportion of juveniles (Figure 7.1b) was lower in the non-sacred site than in the sacred site, it had many more stems in the 05-09 cm size class than in the sacred site.

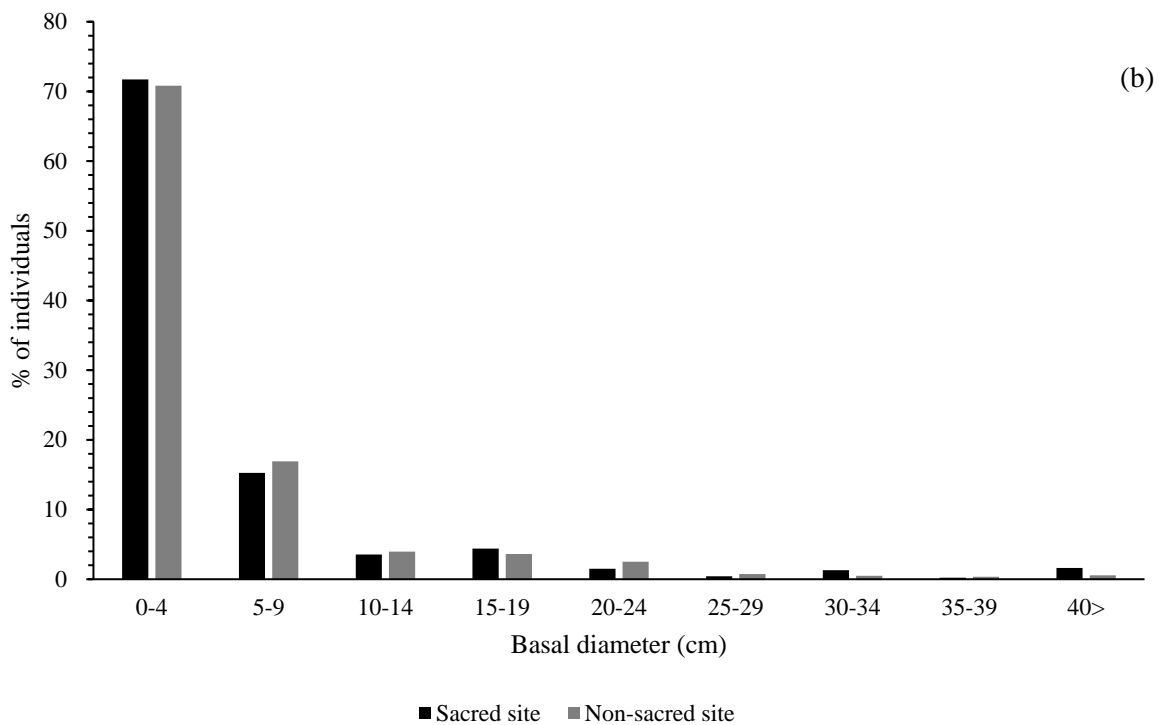
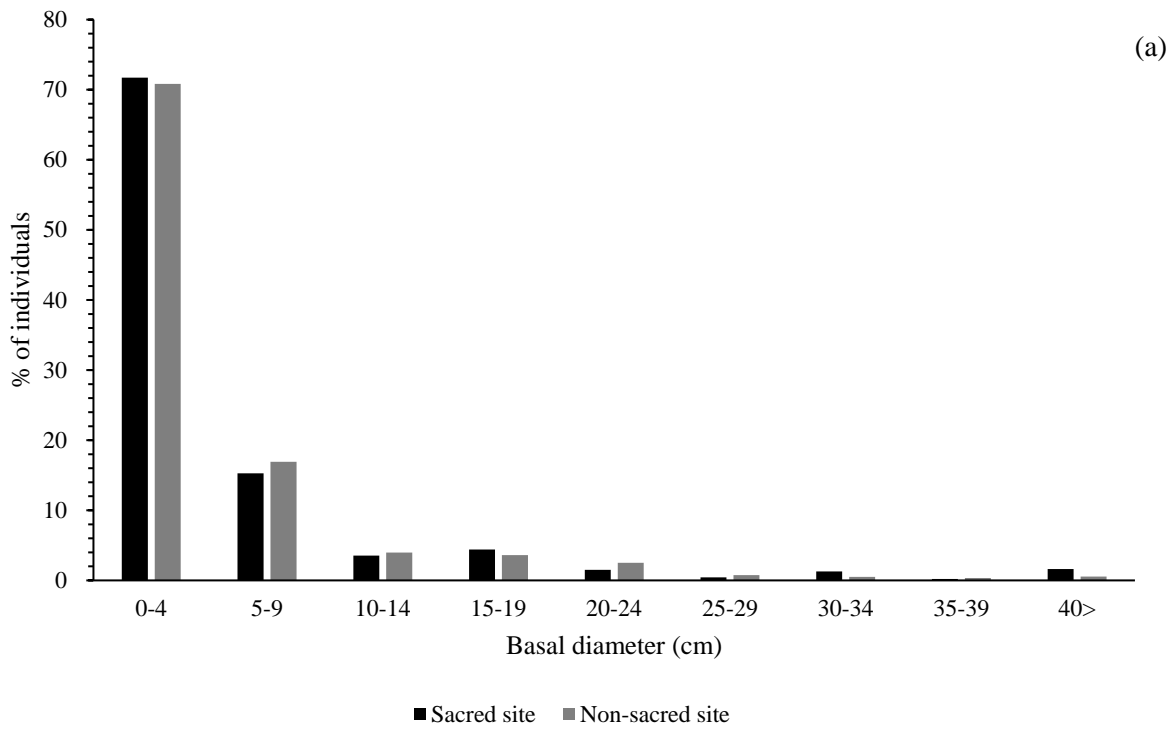


Figure 7.1. Size class distribution of woody plant stems for (a) paired sacred Nhlankomo and non-sacred Royal Natal forests, and (b) paired sacred and non-sacred Funjwa forests.

Quotients, which is the ratio of the number of stems in the successive size classes, indicated that the populations in the sacred and non-sacred paired sites were evenly distributed except for the Nhlankomo forest which was not constant. Quotients fluctuate between the larger size classes for the Nhlankomo forest suggesting some population instability relative to the reserve forest (Figure 7.2a). In Mabasa, the

populations for the paired forests displayed an even distribution. Although fluctuations between the size classes for the non-sacred area of the Funjwa forest were minimal (Figure 7.2b), the non-sacred area of the forest was not as stable as the sacred area of the forest.

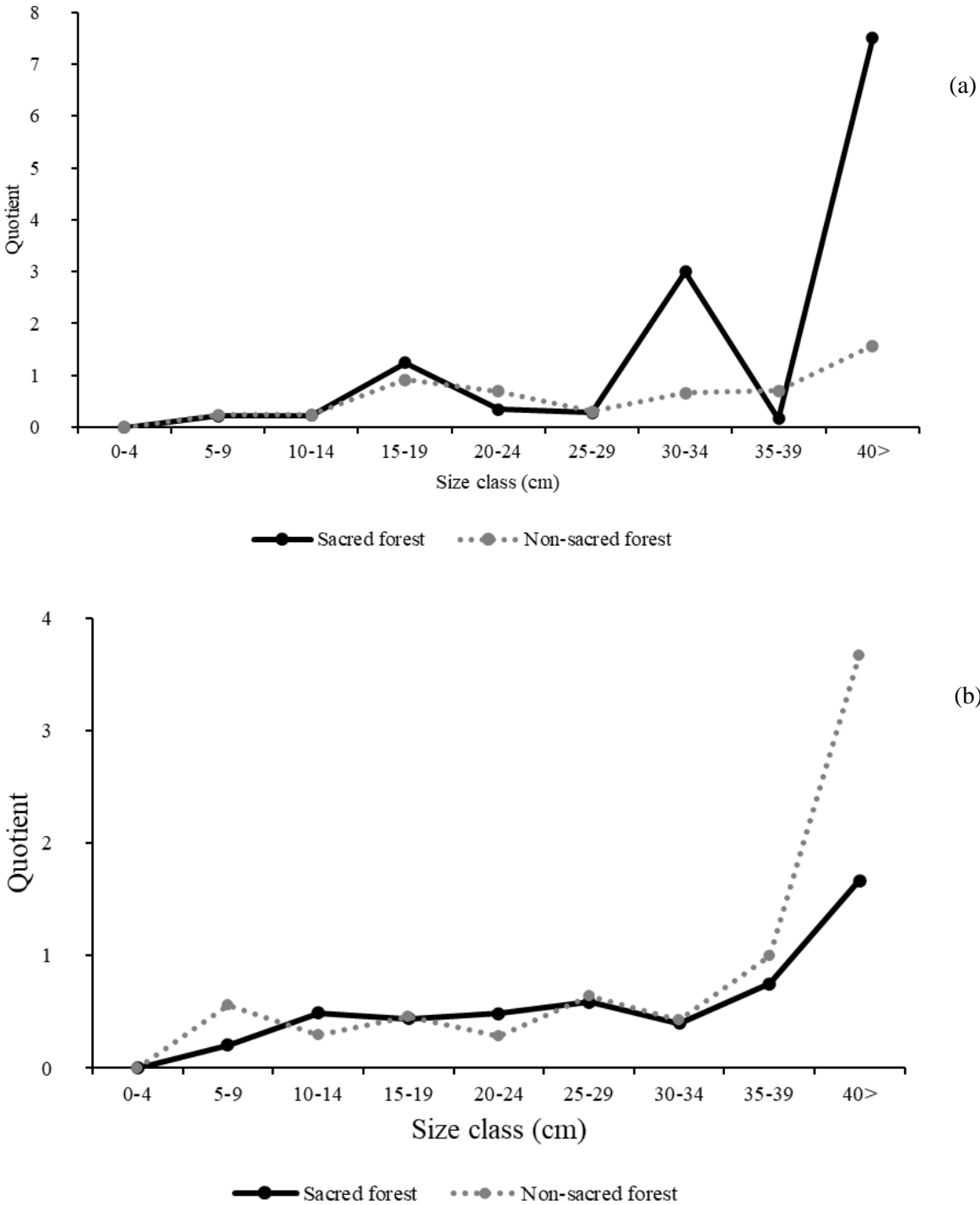


Figure 7.2. Quotients for diameter classes of woody plant stems for the (a) paired sacred Nhlankomo and non-sacred Royal Natal forests, and the (b) paired sacred and non-sacred Funjwa forest.

7.3.2. Species richness, diversity and composition

There were 32 woody plant species that were common to both the non-sacred Royal Natal Reserve forest and the sacred Nhlankomo forest. There were nine species that were only found in the NSF and eight species were found in the SF (Table 7.2). On the other hand, in Mabasa, there were 81 and 66 species in the non-sacred area and sacred area of the Funjwa forest, respectively, of which 38 species were only found in the non-sacred area and 23 species were found in the sacred area (Table 7.2). The difference in species richness for adult stems in both the paired Mazizini sites ($t = -0.49$, $df = 34$, $p = 0.31$) and the paired Mabasa sites ($t = 0.43$, $df = 40$, $p = 0.66$) were insignificant (Table 7.3).

Table 7.2. Species richness and diversity for the paired sacred and non-sacred forests in Mazizini and Mabasa.

Forest type	Area	Species richness		Species diversity: Shannon-Wiener index (H')		
		Juvenile stems	Adult stems	Juvenile stems	Adult stems	All woody stems
Sacred	Mazizini	32	33	2.78	2.79	2.87
	Mabasa	49	43	2.72	2.85	3.01
Non-sacred	Mazizini	35	33	2.69	2.82	2.88
	Mabasa	58	55	3.17	3.31	3.48

Both paired sites had high species diversity according to the Shannon-Wiener index. However, similar to species richness, the difference in species diversity per plot (Table 7.3) was insignificant for both paired sites (Mazizini ($t = -2.32$, $df = 34$, $p = 0.01$) and Mabasa ($t = 1.00$, $df = 40$, $p = 0.84$).

Table 7.3. Mean species richness and diversity per plot for the paired sacred and non-sacred forests in Mazizini and Mabasa.

Measure	Size	Mazizini		Mabasa	
		Non-sacred	Sacred	Non-sacred	Sacred
Mean species richness	Adults	6.91 ± 2.39	7.46 ± 1.85	7.38 ± 2.08	6.44 ± 1.50
	Juveniles	10.87 ± 3.57	10.08 ± 2.81	10.25 ± 2.79	9.61 ± 1.65
Mean species diversity	Adults	1.55 ± 0.38	1.71 ± 0.45	1.68 ± 0.33	1.61 ± 0.26
	Juveniles	1.86 ± 0.32	1.98 ± 0.39	2.02 ± 0.29	1.83 ± 0.37

In terms of species composition, the first axis in the non-metric dimensional scaling (NMDS) plots (Figure 7.3) illustrates that the vegetation centroids aligned linearly. The overlapping convex hulls of

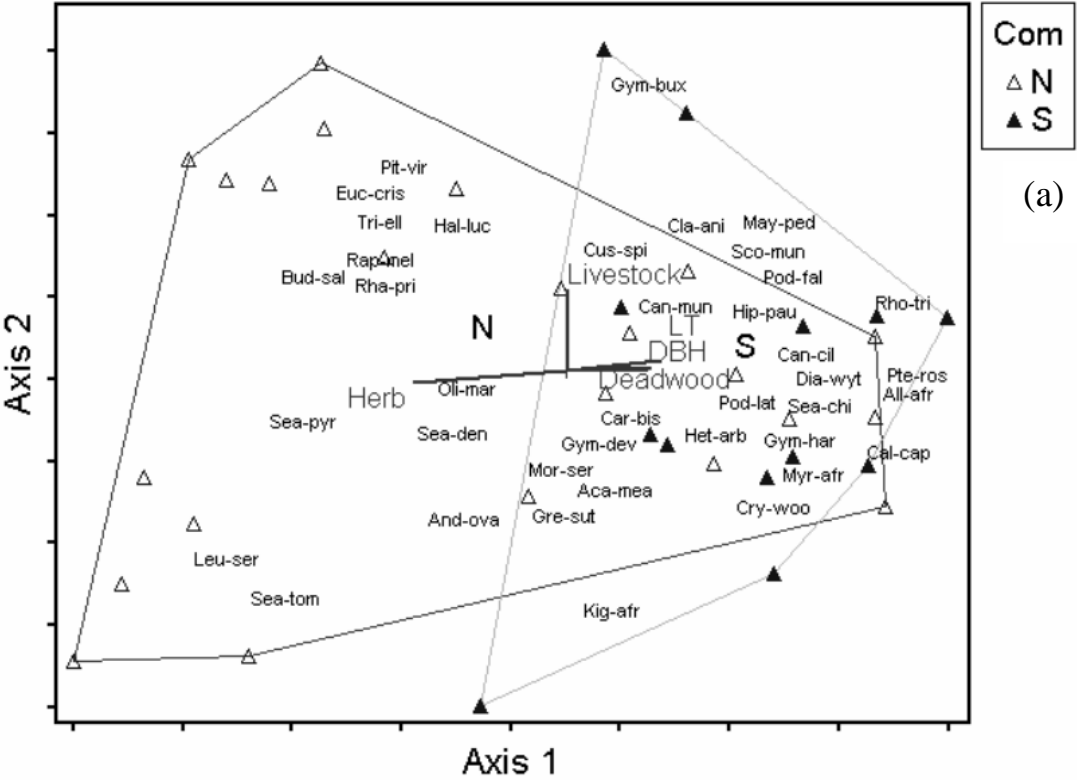
the sacred (S) and non-sacred (N) forests indicate the extent of compositional intergradation between the two forest types (Figure 7.3), whilst the clustered positions of the centroids in the centre of the first axis illustrate a similarity in species composition. For Mazizini, the three-dimensional NMDS solution (Figure 7.3a) revealed the least stress in the data (stress = 12.7, $p = 0.05$). In Figure 7.3a, the first axis explained 28% of the compositional variation, while the second and third axes explained 17% and 12%, respectively. The composition of NSF was more diverse than the SF and shown by the left side of the first axis of the ordination. Generally, the positions of the centroids on either side of the first axis illustrate some similarity in species composition between the majority of the NSF and the SF plots sampled. Indicator species responsible for the composition of NSF and SF include *Carissa bispinosa*, *Diospyros whyteana*, *Maytenus peduncularis*, *Podocarpus falcatus* and *Rapanea melanophloeos*. Plots related to either end of the second axis tended to contain species associated with naturally occurring forest margins or community forests. For example, in forest margins, *Gymnosporia buxifolia* and in community forest *Acacia mearnsii*.

Additionally, variables that corresponded positively with the first axis of the ordination were mean basal diameter ($R^2 = 0.19$), leaf/twig litter ($R^2 = 0.22$) and deadwood ($R^2 = 0.18$), which increased towards the centroid of the SF, while herbaceous abundance increased towards the centroid of the NSF area. Increasing livestock dung was orthogonal to the first axis, and therefore did not correspond with the primary pattern of variation in the data. This implies livestock use, i.e., a browsed understory, as per livestock dung density does not correspond with the first axis, but rather with the second axis. Livestock utilisation also corresponds with the plots associated with species that are generally associated with open-habitats such as *Cussonia spicata* and *Gymnosporia buxifolia*. Nevertheless, an interpretation of this ordination is that in older-growth areas of the NSF, i.e., plots near the centroid and with larger basal diameter values, were not used extensively for timber harvesting or for collecting deadwood, but that the understory herbaceous layer of the SF decreased towards old-growth areas of the forest.

For Mabasa, the three-dimensional NMDS solution (Figure 7.3b), revealed the least stress in the data (stress = 12.5, $p = 0.05$). The first axis illustrates 46% of the compositional variation, while the second and third axes display 21% and 13% respectively. The wider distribution of plots (as shown by the convex hull on the left side of the ordination) indicates that the NSF comprised a broader range of species as compared to the SF. These indicator species include fire-adapted *Coddia rudis*, *Sclerocroton integerrimum*, and *Terminalia sericea*. Species located in the centre of the ordination, such as *Vepris lanceolata*, are characteristic of both forests, while indicator species for the SF are *Combretum molle*, *Landolphia kirkii*, *Suregata africana*.

Additionally, the first axis represents patterns between species composition and other ecological indicators of forest condition such as livestock dung density, mean basal diameter, percentage leaf and twig litter, and percentage bare ground cover. Therefore, the first axis (Figure 7.3b) represents a gradient of species composition and structure from the sacred to the non-sacred area of the forest. The sacred

area of the forest positively correlates with leaf and twig litter ($R^2 = 0.39$), while the non-sacred area correlates with livestock dung density and percentage of bare ground ($R^2 = 0.39$). Mean basal diameter corresponds to the second axis, suggesting that differences in tree stem diameter (and therefore harvesting) do not align with the main axis of variation. This implies that environmental covariates such as livestock and bare ground positively co-vary with the species composition of certain communities of the non-sacred area, while greater leaf and twig abundance corresponds to the sacred area.



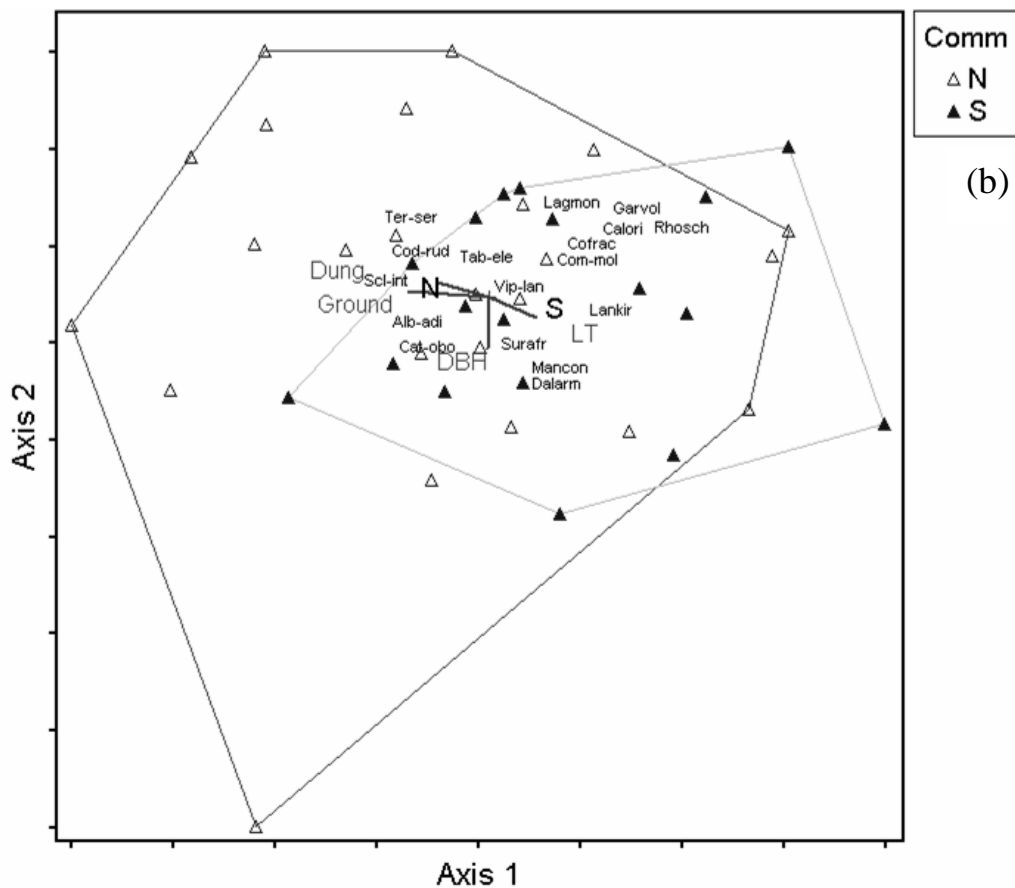


Figure 7.3. NMDS plots illustrating species compositional differences for adult woody plant stems between the (a) paired sacred Nhlankomo and non-sacred Royal Natal forests, and the (b) paired sacred and non-sacred Funjwa forest, including covariation strength with other ecological indicators.

7.3.3. Anthropogenic influence and disturbance regimes

7.3.3.1 Harvesting of woody plants

Signs of harvesting were only recorded for the sacred Nhlankomo forest as the NSF was a well-managed reserve. Most of the plots (85%) showed some signs of harvesting. A total of 263 stems were counted, of which 22% showed signs of harvesting in the SF. On the other hand, in Mabasa, signs of harvesting were recorded for the paired sacred and non-sacred Funjwa forests. The proportion of plots that showed signs of harvesting was 83% and 56% for the non-sacred and sacred areas of the forest, respectively. Additionally, out of the total number of woody stems per site, 13% were harvested in the non-sacred area of the forest and 17% in the sacred area of the forest. Statistical analysis showed no significant difference between the percentages of harvested stems ($t = 0.089$, $df = 40$, $p = 0.93$).

The mean harvesting extent based on Cunningham's scale was considered. However, a statistical test was not applied for the paired Mazizini sites as signs of harvesting were only found in the Nhlankomo forest. *Acacia mearnsii*, *Podocarpus latifolius* and *Halleria lucida* were amongst the most preferred plant species harvested at a scale of 7 (complete tree removal, Table 7.4). Although the FG participants claimed that *Podocarpus latifolius* grew in deeper parts of the forest (Chapter 6), it ranged within the

top three most harvested plants. It was also noted that all woody plant species that showed signs of harvesting were classified as complete tree removals.

Table 7.4. Most preferred/commonly harvested stems and harvesting extent (as per Cunningham's scale) with respective stem count of unharvested stems for the sacred Nhlankomo forest.

Sacred Nhlankomo Forest			
Species	No. of cut stems	No. of uncut stems	Harvesting extent
<i>Acacia mearnsii</i>	33	12	7
<i>Halleria lucida</i>	10	16	7
<i>Podocarpus latifolius</i>	16	38	7

In Mabasa, the extent of harvesting was diversified (Figure 7.4). Nevertheless, the majority of harvests were complete tree removals for both the sacred and non-sacred areas of the Funjwa forest (84% and 76%, respectively), whereas bark and stem harvesting were minimal. The difference ($\chi^2 = 6.86$, $df = 7$, $p = 0.44$) between the mean score of bark harvesting between sacred (6.1 ± 1.70) and non-sacred (5.7 ± 2.08) areas of the Funjwa forests was not significant. *Terminalia sericea* and *Psydrax locuples* were amongst the most preferred woody species harvested in the non-sacred area (Table 7.5). In comparison, *Vepris lanceolata* and *Surigata africana* were the most preferred woody plant species harvested in the sacred area of the forest (Table 7.5).

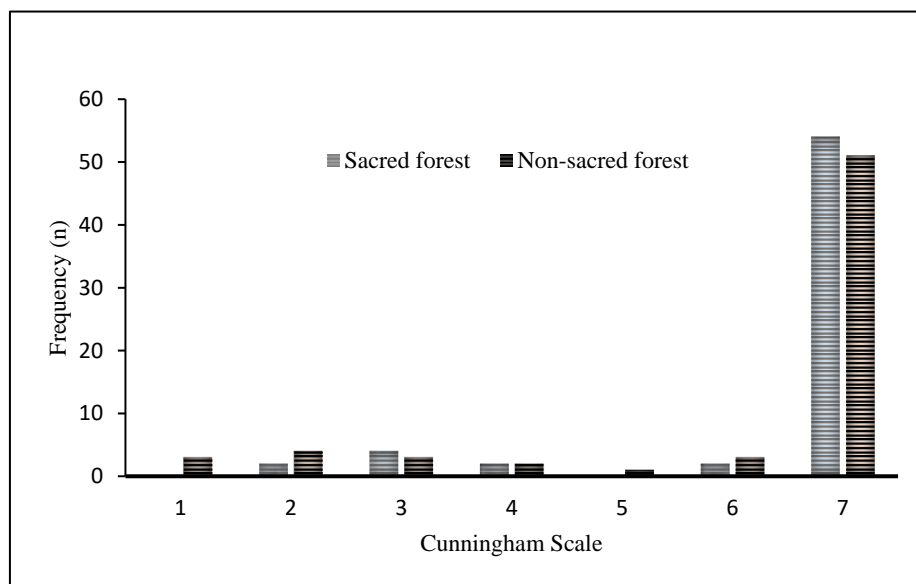


Figure 7.4. Harvesting extent as per Cunningham's scale for the paired sacred and non-sacred Funjwa forests.

Table 7.5. Most preferred/commonly harvested stems with the respective type of harvest for the paired sacred and non-sacred Funjwa forests.

Sacred Funjwa Forest				
Species	No. of trees cut	No. with stems cut	No. with bark harvesting	No. of uncut stems
<i>Apodytes dimidiata</i>	10	0	1	23
<i>Suregada africana</i>	12	0	0	16
<i>Vepris lanceolata</i>	23	0	0	120
Non-sacred Funjwa Forest				
Species	No. of trees cut	No. with stems cut	No. with bark harvesting	No. of uncut stems
<i>Psydrax locuples</i>	12	0	0	25
<i>Sclerocarya birrea</i>	5	0	0	12
<i>Terminalia sericea</i>	14	0	3	27
<i>Vepris lanceolata</i>	3	0	1	54

7.3.3.2. Disturbance measures

The average diameter of deadwood in both paired sites in Mazizini and Mabasa was relatively large (Table 7.6). However, the differences in the mean diameter for deadwood between both paired sites in Mazizini ($t = 1.51$, $df = 34$, $p = 0.14$) and Mabasa ($t = 1.23$, $df = 40$, $p = 0.22$) were not statistically significant. The mean density of livestock dung in the sacred Funjwa site and non-sacred Funjwa sites was $128 \pm 214 \text{ ha}^{-1}$ (cow dung) and $267 \pm 428 \text{ ha}^{-1}$ (cow dung), respectively. For Mazizini, the mean density in the sacred Nhlankomo site and non-sacred Royal Natal site was $77 \pm 192 \text{ ha}^{-1}$ (cow dung) and $13 \pm 46 \text{ ha}^{-1}$ (cow dung), respectively. The differences between the paired Mazizini ($t = 1.53$, $df = 34$, $p = 0.13$) and paired Mabasa ($t = 1.26$, $df = 40$, $p = 0.21$) sites were insignificant. In contrast, the paired Mazizini site showed a significant difference in wildlife dung ($w = 234$, $p < 0.00$) of which the NSF had a higher mean count (Table 7.6). In contrast, the paired Mabasa site indicated an insignificant difference ($t = 0.34$, $df = 40$, $p = 0.74$) (Table 7.6). The mean density in the sacred Nhlankomo forest and the reserve forest was $15 \pm 55 \text{ ha}^{-1}$ (duiker dung) and $291 \pm 346 \text{ ha}^{-1}$ (duiker dung), respectively. The mean density in the sacred Funjwa forest and non-sacred Funjwa forest was $6 \pm 24 \text{ ha}^{-1}$ (duiker dung) and $8 \pm 28 \text{ ha}^{-1}$ (duiker dung), respectively.

Table 7.6. Mean diameter for deadwood, dung count and percentage ground cover across the transects in the paired sacred and non-sacred forests in Mazizini and Mabasa.

Variable	Mazizini		Mabasa	
	Non-sacred	Sacred	Non-sacred	Sacred
Mean deadwood diameter (cm)	52.49 ± 26.82	40.52 ± 12.71	38.22 ± 16.12	44.42 ± 16.11

Mean livestock dung count (n)	0.13 ± 0.46	0.77 ± 1.92	2.67 ± 4.28	1.28 ± 2.14
Mean wildlife dung count (n)	2.91 ± 3.46	0.15 ± 0.55	0.08 ± 0.28	0.06 ± 0.24
Mean leaf/twig litter cover (%)	66.0 ± 23.0	80.0 ± 17.0	84.0 ± 16.0	92.0 ± 10.0
Mean bare ground cover (%)	1.0 ± 2.0	3.0 ± 5.0	9.0 ± 14.0	3.0 ± 8.0
Mean herbaceous cover (%)	23.0 ± 23.0	12.0 ± 17.0	7.0 ± 10.0	5.0 ± 7.0
Mean rock cover (%)	10.0 ± 10.0	5.0 ± 8.0	0.0 ± 0.0	0.0 ± 0.0

There was no variation in the mean percentages between the paired sites for the following:

- Leaf and twig litter cover: $t = 1.96$, $df = 34$, $p = 0.06$ (Mazizini); $t = 1.89$, $df = 40$, $p = 0.07$ (Mabasa)
- Bare ground cover: $t = 1.90$, $df = 34$, $p = 0.07$ (Mazizini); $t = 1.55$, $df = 40$, $p = 0.13$ (Mabasa)
- Herbaceous cover: $t = 1.57$, $df = 34$, $p = 0.13$ (Mazizini); $t = 0.88$, $df = 40$, $p = 0.38$ (Mabasa)

Finally, human litter was not observed in the sacred Nhlankomo forest, whilst 0.25% of human litter was found in only one sample plot within the non-sacred reserve forest. No human litter was found in the paired Mabasa forests.

7.4. Discussion

7.4.1. Plant density

Tree density varies from forest to forest due to the differences in environmental, management and disturbance conditions that influence species regeneration and adaptability (Mohanta *et al.*, 2021). Adult plant density contributes to the regeneration of species. As such, adult plants are considered the most important component in community ecology as the determining factor for the availability of seedlings and saplings (Mohanta *et al.*, 2021). The differences in adult plant density between the paired Mazizini and Mabasa sites were insignificant. This contrasted with the findings of Rath *et al.* (2020), where the SF in Banspal, Odisha, India had a significantly greater density of large trees compared to the intensively used reserve forest. Likewise, the findings from Alohou *et al.* (2017) showed that woody plants were better protected in the sacred groves than in the reserve forests due to restricted access to the sacred groves based on religious beliefs and values. Mahaseth *et al.* (2023) shared a similar finding in which the sacred grove had a higher number of mature trees as a result of strong religious beliefs associated with the site embedded in community management that served to minimise forest use. As such, the insignificant difference in adult plant density for both paired sites in Mazizini and Mabasa suggests that the sacred status does not significantly protect these forests, or that the extraction rates in the NSF are low.

Like adult plant density, the insignificant differences in juvenile plant density for the Mabasa and Mazizini paired sites are attributed to the lack of forest management because traditional values and

customs are being undermined (Chapter 4). The insignificant difference between the paired sites also suggests similar levels of use and serves to support the lack of ceremonies that take place in these forests (Chapter 6), which usually involve ground clearing or ground fires by the devotees (Onyekwelu *et al.*, 2022). Additionally, the lack of ceremonies reduces the trampling of understory stems experienced by large numbers of people who visit these sacred site. For example, Onyekwelu *et al.* (2022) documented that in the Osun-Osogbo sacred grove in Nigeria, pilgrimage-related ceremonies and rituals were associated with localised impacts on tree density and natural regeneration. In contrast, this study found no significant differences in juvenile plant densities; instead, the forest displayed a high abundance of juvenile stems, suggesting strong regeneration potential that is vital for maintaining forest health (Idrissa *et al.*, 2017; Suggitt *et al.*, 2022).

7.4.2. Population dynamics and stability

The population structure of woody stems, in terms of either age or size, is a well-known method of providing valuable information about population dynamics (Baidya *et al.*, 2022). Similar to Martins and Shackleton (2017) two measures were adopted to understand population dynamics and stability for the paired Mazizini and Mabasa sites. First, the size class distribution (SCD) graph demonstrates the relationship between diameter classes and the frequency of stems in each class. Second, quotients between successive size classes as a graphical representation provide interpretive insight into the dynamics and stability of the population. Quotients represented graphically “can easily detect size classes with disproportionately high or low numbers of stems” (Martins and Shackleton, 2017:73). For example, oscillating size class quotients are characteristic of unstable populations (Shen *et al.*, 2013; Martins and Shackleton, 2017).

The slopes for the SCD graphs for both the paired sites in this study were left-skewed (Figure 7.1) as a consequence of the significant level of recruitment. Hence, like Martins and Shackleton (2017) and Baidya *et al.* (2022), the SCD of woody plant tree species revealed a reverse J-shaped structure or negative exponential curve. This indicates that the populations in both paired sites are stable as a consequence of the domination of smaller-size class stems (Martins and Shackleton, 2017; Soumya *et al.*, 2019). This inverse J-shaped curve also serves as an indication of how the forest is regenerating (Onyekwelu *et al.*, 2022), which suggests a healthy ecosystem (Venter and Witkowski, 2009; Martins and Shackleton, 2017; Baidya *et al.*, 2022; Mohanta *et al.*, 2021). Moreover, Rath *et al.* (2020) and Cardelús *et al.* (2020) pointed out that significant seedling recruitment and germination may be a consequence of forest intactness. Hence, the forest intactness for both paired sites revealed in Chapter 6, coincides with the regeneration status for these forests as well as the high juvenile plant densities for the paired sites. Additionally, Baidya *et al.* (2022: 12) revealed that the reverse J-shaped distribution curve indicates “that the prevailing microclimatic conditions are suitable for the better growth and survival of young individuals for most of the species”.

Similar to the stability indicated by the inverse J-shaped curves, the non-fluctuating quotients displayed graphically between the consecutive size classes for all the sites suggest population stability. However,

the quotients for the largest size classes of the Nhlankomo forest were relatively less stable than the reserve forest. The greater stability exhibited by the reserve forest is possibly due to its effective management (e.g., there were no signs of harvesting or tree logging, minimal presence of livestock dung and greater presence of wildlife) as opposed to the Nhlankomo forest. This contrasted with Alohou *et al.* (2017) where the reserve forest in southeastern Benin was poorly managed, whilst the SF was better managed.

7.4.3. Forest disturbance

7.4.3.1. Proportion and extent of harvesting

Measuring the intensity and extent of harvesting is important to understand forest conditions as a consequence of habitat modification that is “dependent on the nature and intensity of harvesting” (Leaver, 2020: 62). For Mazizini, signs of harvesting were only observed in the Nhlankomo forest, widespread across more than half of the plots that were sampled, whilst no harvesting was found in the reserve forest. The percentage and extent of harvesting in the Nhlankomo forest appear to have affected some level of plant population stability as per its fluctuating quotients (Section 7.3.1.3). The fluctuating quotients for the largest size classes illustrate their dynamic, suggesting that they may be the ones most impacted by harvesting, which is affecting their population stability. Consequently, harvesting activities are most likely affecting those in the largest size classes. Similarly, in Martins and Shackleton’s (2017) study fluctuating quotients between size classes for *Hyphaene coriacea* and *Phoenix reclinata* demonstrated population instability. Martins and Shackleton (2017) stated that this decline affected the transitions between size classes possibly due to selective harvesting and tapping that were leading to a significant decline in these groups, whilst the smallest size classes were typically avoided and displayed high densities.

No harvesting in the reserve forest supports that the management of the reserve is better than that of the Nhlankomo forest. In Mabasa, the insignificant differences in the proportion of stems harvested as well as the extent of harvesting, illustrate that there is no difference in the way the sacred area of the forest is used as compared to the non-sacred area. The insignificant difference between the Mabasa paired site also aligns with the insignificant differences in plant density and the population stability of the forest, which may suggest that harvesting intensity is sustainable in the forests. Unlike Leaver (2020), who attributed the alteration in structural habitat features and seedling recruitment to high-intensity pole harvesting. Consequently, harvesting in the Funjwa forest does not appear to be characterised as high-intensity pole harvesting, which corroborates with the shift in the type of forest use being primarily *muthi* harvest (Chapter 6). Nevertheless, evidence of harvesting in the sacred area of the Funjwa forest as well as the Nhlankomo forest serves as evidence that access and use are not regulated. Effective taboos, customs and regulations in the management of SFs are meant to prevent the felling of trees within the SF (Onyekwelu *et al.*, 2022), but are now compromised in both communities in this study because of the loss of cultural beliefs (Chapter 4), and the lack of respect for and adherence to the TAs (Chapter 5).

7.4.3.2. Deadwood on forest floor

Deadwood serves as an indication of forest condition in terms of forest productivity (Merganič *et al.*, 2022) and forest diversity (Garbarino *et al.*, 2015). Deadwood also provides insight into the disturbance context (Garbarino *et al.*, 2015) and is indicative of the presence of older trees. Whilst there was an insignificant difference between the mean diameter for deadwood between the paired sites, the mean diameter of deadwood on the forest floor, particularly in the sacred area of the Funjwa forest, does not coincide with the preferred size. The preferred "intermediate" diameter size is 5-14 cm which is typically used for fuelwood, building wood and other purposes (Pote *et al.*, 2006: 14). This finding also supports the shift in use from resources harvested for daily needs to being that of *muthi* harvesting. Therefore, understanding the "disturbance context", i.e., the reasons and interests in making use of the forest is important (Alohou *et al.*, 2017: 6), and helps in understanding the deadwood profile and harvesting patterns.

7.4.3.3. Livestock pressure and wildlife presence

Livestock dung density was recorded as one indicator of the level of anthropogenic pressure through the introduction of cattle. A high occurrence of livestock dung suggests high livestock pressure (Stickler and Shackleton, 2015). In some contexts, in South Africa, the presence of cattle is considered a threat to forest habitats through their concomitant grazing and trampling of seedlings (Idrissa *et al.*, 2017; Leaver, 2020). Studies have shown that intensive livestock grazing can be a disruptive activity that impacts plant composition and reduces overall biodiversity (Roberts and Gilliam, 2003; Idrissa *et al.*, 2017), with seed and seedling being the most precarious phases in a plant's life cycle, often experiencing the greatest rates of mortality (Kostel-hughes *et al.*, 1998). However, the concerns raised by Idrissa *et al.* (2017: 7) about the presence of livestock impacting seedling growth, health and survival, limiting seed availability, and "increasing soil erosion through wind and runoff", contrast with the conditions observed in Mabasa and Mazizini sites. First, the livestock dung density between the paired Mazizini and Mabasa sites was relatively low and statistically insignificant. Second, both forests for the paired sites revealed inverse j-shaped SCD graphs demonstrating high levels of recruitment. This suggests that in these study sites, small-scale grazing is not currently exerting the same disruptive effects documented in other contexts.

The density of wildlife dung was also measured to provide insight into anthropogenic disturbances. The significant result for wildlife dung density between the paired sites in Mazizini illustrates that the reserve forest had a greater presence of wildlife, which coincides with the absence of harvesting suggesting minimal anthropogenic disturbance. This was found in the study by Stickler and Shackleton (2015), where higher densities of indigenous antelope dung were found in the provincially protected conservation land, considered low-use zones, as opposed to the high-use zones. The greater presence of wildlife dung in the reserve forest concurs with the relatively non-disruptive human presence, i.e., despite the reserve's popularity and frequent visits as indicated by the oral histories and FG workshops. In the paired site in Mabasa, the mean wildlife dung count was <1 per plot, which is perhaps a direct

result of the removal of all game from the game reserve surrounding the Funjwa forest (Chapters 4 and 6).

7.4.3.4. Ground cover as an indicator of forest disturbance

Ground cover reduces surface flow which prevents erosion during rainfall and overland flow (Scott, 2000), whilst bare ground provides insight into forest intactness and/or structure. The herbaceous cover also provides insight into forest disturbances, e.g., trampling by large vertebrates, herbivory, fires and forest management practices concerning timber harvesting (Roberts and Gilliam, 2003). For example, pole harvesting has a direct effect on the herbaceous cover as a consequence of the reduction in tree density, in which the availability of light and soil moisture content is increased (Leaver, 2020). The impact of this depends on the disturbance severity, i.e., frequency and type of harvesting such as pole harvesting or tree logging, and the effects in both the canopy and understory (Roberts and Gilliam, 2003). Consequently, the lack of significant forest disturbance in both the sacred and non-sacred areas of the Funjwa forest aligns with the insignificant difference in herbaceous cover. Whilst in Mazizini, harvesting was only evident in the Nhlankomo forest, the disturbance did not have a significant impact on the herbaceous cover. This is possibly because of the reduced reliance on the Nhlankomo forest for resources as revealed by the trend analysis in Chapter 6, alluding to a reduction in disturbance severity.

Chege and Bytebie (2005) found that forests of the Taita Hills, Kenya, like the less disturbed Yale forest with a closed canopy minimises the herbaceous cover, whilst having more plant litter as compared to forests that have more open canopies such as Ndiwenyi and Kichuchenyi. In this study, both paired sites illustrated that they are becoming increasingly less fragmented as per the change detection analysis in Chapter 6. These forests having a similar trend may have contributed to an insignificant finding for herb cover and plant litter. The insignificant difference in plant litter suggests limited disturbance or at least similar levels of forest disturbance in both paired sites. This somewhat contrasts with Leal *et al.* (2023), who reported lower leaf and twig litter in forests with low basal area and high canopy openings, as an indication of higher levels of disturbance. Leal *et al.*, (2023) found litter production to be lower in forests that were degraded. Furthermore, plant litter quantity can strongly affect abiotic conditions such as light, moisture and temperature, as well as other micro-environment factors of seeds and seedlings (Kostel-Hughes *et al.*, 1998). Hence, leaf litter affects seedling establishment and survival, and can play a significant role in structuring many plant communities, e.g., herbaceous and woody forest species (Kostel-Hughes *et al.*, 1998). As such, the insignificant difference in plant litter corroborates the insignificant difference in the plant density of juvenile species for both paired sites.

7.4.4. Biodiversity of the sacred forests

Species richness is a commonly used index for measuring biodiversity in an ecosystem (Onyekwelu *et al.*, 2022). Suchiang *et al.* (2020: 2) noted that species diversity, composition and distribution are crucial “distinguishing characters of a community” which affects the community structure and function. As it becomes more evident that both SFs are experiencing an erosion of ancestral traditions and beliefs, and increasing levels of *muthi* harvesting (Chapter 6), understanding plant species composition and diversity

is imperative. Concerns over *muthi* harvesting shared by the FG and elderly participants in Chapter 6, have not yet contributed to significant differences in woody plant species richness and diversity for the Mabasa paired sites. Whilst in Mazizini, despite the absence of harvesting in the reserve forest, this has not contributed to a significant difference in species richness, diversity and composition between the paired sites. This was in contrast to Alohoun *et al.* (2017), in which species richness was higher in the sacred grove of Benin in comparison to three of the non-sacred reserve forests. The insignificant difference in species richness between the SF and the reserve forest in Mazizini also contrasts with the case study in Ghana between the Jachie sacred grove and the Nkrabea forest reserve. In Ghana, the beliefs associated with the sacred grove are still strongly upheld and have contributed to biodiversity conservation (Onyekwelu *et al.*, 2022), unlike the Mazizini community.

Despite the insignificant differences in species diversity, both paired sites illustrated high Shannon-Wiener diversity index (H') values, which imply high species richness (Onyekwelu *et al.*, 2022) and evenness (Kuruneri-Chitepo and Shackleton, 2013). The Shannon index usually ranges from 1.5 to 3.5 (Kuruneri-Chitepo and Shackleton, 2013), of which this study ranges from 2.6 to 3.4. The SFs in this study share high diversity values similar to the sacred groves reported in south-western Nigeria (2.63 to 3.55), but higher than diversity values reported for the sacred groves in Tamil Nadu India (1.69 to 2.33) and Tanzania (1.2 to 1.4) (Onyekwelu *et al.*, 2022). High diversity indices indicate the potential these SFs have for contributing to biodiversity conservation. However, the reason for the good biodiversity conservation status of the sacred groves reported by Onyekwelu *et al.* (2022) was due to its strict traditional method of conservation and restrictions within the groves. Cultural beliefs and taboos are meant to protect SFs (Khan *et al.*, 2008; Nganso *et al.*, 2019; Onyekwelu *et al.*, 2022), but the insignificant difference in species diversity between the paired sites supports that both the sacred and non-sacred areas of the Funjwa forest are used similarly or neither areas of the forests are being overused. There is considerable evidence that shows that human activities negatively affect biodiversity and the structure of plant communities across various ecosystems (Rath *et al.*, 2020). This does not appear to be the case in Mabasa. Despite the findings in Chapter 4 revealing a deterioration in ancestral beliefs and traditional management practices of the sacred area of the forest, judicious use is permitted. The structural parameters and biodiversity indices allude to judicious use. However, similar use in both sites implies that other factors such as socioeconomic changes are contributing to this dynamic (Chapter 6).

In contrast to the Mazizini paired site, the study by Rath *et al.* (2020) revealed a greater diversity and population stability of the SF as compared to the reserve forest in Odisha state, India, which they attributed to the management of the SF. In Mazizini, despite the absence of harvesting in the reserve forest as compared to the Nhlankomo forest, it did not contribute to any significant difference in species richness and diversity. Nevertheless, both sites being biologically diverse may be a consequence of sustainable harvesting being practiced in the Nhlankomo forest given its population stability. The reduced dependence on the SFs for provisioning ecosystem services, aside from the increased *muthi* use (Chapter 6), aligns with Makhubele *et al.* (2023), who noted that the heavy reliance on provisioning

services lead to tree species loss. Consequently, high levels of diversity observed in the SFs in this study suggest minimal intensity of timber harvesting for daily needs.

Concerning species composition, despite the insignificant difference in harvesting between the paired Mabasa site, there is a wider range of species in the non-sacred area compared to the sacred area of the forest. The higher species composition in the non-sacred area of the forest indicates variation in the types of disturbances than those typically found in the SF. Like tropical forests, anthropogenic disturbances have been reported to regulate not only regeneration dynamics but its floristic composition (Upadhaya *et al.*, 2008). Like Mabasa, the composition of species for the paired Mazizini sites shows greater variation in the non-sacred forest. Despite the species composition illustrating a significant variation between the paired forests, it is worth acknowledging that the paired sites show notable similarities.

7.5. Conclusion

There was no significant difference in woody plant density, species richness and diversity between the paired sites. Based on these insignificant differences, the findings suggest that the sacred status alone does not provide significant protection against human-induced impacts. The disturbance regimes illustrate similar harvesting and livestock presence, suggesting the erosion of traditional governance, traditional beliefs and sacred reverence, that may have initially served to limit forest use and protect these SFs. Use within the sacred area of the Funjwa forest confirms that its sacred significance no longer offers protection against anthropogenic pressures. Although similar forest disturbances are attributed to the ineffectiveness of traditional laws and taboos that are meant to otherwise guide forest use and restrict use, use appears to be sustainable as per the population structure for both paired sites. Ground cover variables and increasing forest intactness over time indicate limited forest disturbance. Similar use could also be a consequence of socioeconomic changes that have been identified in Chapter 6. The lack of pole harvesting and the deadwood profile concurs with the shift in use discussed in Chapter 6, particularly since the diameter size for deadwood does not fall within the preferred size class, indicating limited use for fuelwood, building poles, etc. In Mazizini, the reserve forest is considered effective in conserving biodiversity due to the absence of harvesting and significantly higher presence of wildlife, which contrasts to the community-managed forest that has been unable to effectively restrict use and access. However, the impact of the removal of large, mature trees has not disrupted the regeneration potential of the forest. The SCD graphs demonstrate high levels of recruitment which suggests healthy populations, good regeneration potential and supports population expansion.

Unfortunately, as this is the first study of SFs in both communities, there are no historical baselines, e.g., species composition 10–50 years ago. This absence makes it difficult to determine whether present patterns reflect ecological recovery, ongoing degradation or a transition toward a new ecological state. While, change detection analysis (Chapter 6) shows improvements in forest cover and size, linked to decreased dependence on forests for poles, enabling some ecosystem recovery, species composition and richness appear to be declining due to the exploitation of *muthi*. This apparent contrast likely suggests

that the SFs are undergoing a species transition, where valuable or vulnerable species are being selectively removed, reducing their abundance and altering competitive dynamics. This points to the limits of sacredness alone in safeguarding ecological integrity. In other words, while cultural protection has contributed to forest persistence, it has not prevented unsustainable extraction of some species within the sacred area of the forest. This highlights a key area for further research.

Despite several insignificant differences which may suggest that the sacred status is an ineffective measure for species conservation, these sites have the potential to contribute towards biological conservation. Conservation gains can be encouraged by strengthening the traditional laws, regulations, and customs associated with the SFs. As such, they should be incorporated into national forest conservation programmes for long-term conservation of biodiversity, ecosystem services, and sustainable resource use. Including them in national forest conservation programmes could help ensure these forests are managed in ways that maintain and enhance their ecological benefits for both the environment and local communities. However, such integration also carries risks, particularly the potential weakening of TA in monitoring and enforcing rules, and the possibility of communities may lose control over the resource. Potential solutions to address these challenges are discussed in Chapters 8 and 9. Additionally, knowledge concerning harvesting patterns could help guide resource management decisions, inform forest management practices or participatory community-based, forest management systems, and serve as a reference point for future population studies. More specifically, in Mazizini, these differences in the presence of harvesting as compared to the reserve forest may inform management approaches for an integrated framework that may confer some benefits.

Part 4: Final Synthesis and Recommendation

Chapter 8: Mitigation and adaptation in achieving the desired futures of sacred forests

8.1. Introduction

This chapter is framed as a synthesis, integrating findings from Chapters 3 to 7. The meaningful links between traditional practices, beliefs and values that once served to protect these SFs (Chapter 3) have been compromised as revealed in Chapters 4 and 5. Whilst Chapter 5 illustrated a shift in the values attached to the SFs as per the listing and ranking, conservation values highlighting the aspirations to safeguard the cultural heritage was also illustrated. As such, this chapter expands on how the community has responded to changes in beliefs and traditional governance in addressing the social-ecological shifts. If the cultural integrity of the forest is threatened due to breakdowns in the biocultural relationships, then it is likely to compromise the ecological condition of the forest. Although degradation of the forest was not evident in Chapters 6 and 7, many other SFs, such as the SFs in Akwa Ibom State, Nigeria (Agbaeze *et al.*, 2013) and the SFs in Kasaragod and Kodagu districts in India, have experienced this dual loss. Biological diversity conservation requires efforts to appreciate and preserve cultural diversity (Pretty *et al.*, 2009). As such, this chapter examines the trajectories of change by projecting the consequences and drivers into the future in establishing the participants' desired futures for Mabasa and Mazizini. The chapter explores the outcomes of these consequences in reference to forest loss, the rise of church influence and cultural shifts, the significance of sacred burials, national constitutional impacts, and youth disengagement.

Given that an understanding of the drivers of change can help anticipate future change or make sense of the future of these SF, this chapter primarily presents solutions to overcome the drivers of change or current problems inhibiting the communities from attaining their desired futures. The important need to determine possible measures or to consider efforts to conserve the complex socio-cultural dynamics of SFs concurs with Dudley *et al.* (2010) and Shengii (2012). These measures provide an understanding of the direction that conservation efforts should take. Moreover, the understanding of these drivers allows for the understanding of how and why spiritual values attributed to SFs have evolved (Roux *et al.*, 2022). Spiritual values of forests have been defined as “the subjective significance an individual or community attaches to the intangible or metaphysical experience of connecting their beliefs, emotions, identity, and cultural heritage with forests” (Roux *et al.*, 2022: 2).

This chapter first unpacks the desired headlines developed by the scenario workshop groups. Second, the chapter demonstrates some of the issues that are hindering these communities from reaching their desired futures, many of which have been explicitly linked or referred to from previous chapters. Third, measures to overcome these issues to achieve their desired futures have been outlined. This chapter also provides predictions and suggestions for the future in terms of plans and policies to protect the spiritual values and conserve the forest before it is further undermined and to address current changes or shifts before transformation becomes difficult or costly to reverse. Finding solutions to challenges affecting SFs is important for preserving cultural integrity and diversity, but also ecological significance. The

novelty of this chapter lies in the diversity of solutions developed by the communities and how they are developed based on how the issues are identified across the different groupings. The different social groups provide insight into the different views. The chapter provides insight into the similarities and contrasts between the groups.

Sacred natural sites have been recognised by the International Union for Conservation of Nature (IUCN) and are being considered as Other Effective Area-Based Conservation Measures (OECMs) known as Indigenous and Community Conserved Areas (ICCAs) to protect the remaining or threatened biodiversity (Soury, 2007; Kumar and Sen, 2022). Likewise, my engagements in South Africa have involved discussions to possibly identify and incorporate SNS into national biodiversity plans. Sinthumule (2022) argues that some SFs offer biodiversity conservation results similar to formally protected areas, and should be recognised by local and national governments, including their associated spiritual governance. Therefore, understanding the link between cultural practices and the ecological condition of the SF can help in the development of more effective conservation strategies in informing local and national policy. Subsequently, SNS can be incorporated into existing environmental policies and regulations governing nature. Such recognition could pave the way forward for other states which could ultimately lead to the IUCN and CBD formally including them in their future governance matrix (Sinthumule, 2022).

8.2. Objective, research questions and methods

The objective of the chapter was to assess the desired futures of the SF to appraise how SFs can be best protected and managed. To achieve this objective the following research questions were answered:

1. What insight does the desired futures suggest about the communities' values and aspirations concerning the preservation of their SFs?
2. What do the desired futures say about the importance of their SFs serving as motivations for conserving these sites?
3. What are the potential consequences of the erosion of spiritual values on the local communities and the ecological integrity of the SFs, and how have the communities responded to changes in beliefs and governance to address these social-ecological shifts?
4. What strategies, policies, and educational programmes can be implemented to protect and strengthen the SF's biocultural values, promote sustainable resource use, and engage the communities in conservation efforts that respect their cultural traditions and values?

This chapter is primarily based on the scenario workshop (Section 2.3.2.6) findings. Information was also drawn from the FG discussions (Section 2.3.2.3), key informant interviews (Section 2.3.2.4) and oral histories (Section 2.3.2.5). The findings are attributed to the scenario workshop participants unless otherwise explicitly stated to be from other sources, i.e., the FG participants, key informants, or oral

history participants (also referred to as elderly participants). The future of the biocultural relations of these communities and their tenacity in conserving the SFs were analysed to identify solutions or future interventions. To interpret and analyse the results of the scenario workshops in this chapter, the groups were assigned names. In both Mabasa and Mazizini communities, the general community members group is referred to as the community stewards (CS) groups one and two, while the royal family and traditional authority members group are referred to as the heritage guardians (HG) groups one and two. These names are maintained across both of the study sites. Table 8.1 presents the original headlines each of these groups worked with. The table illustrates the shared headlines to identify and compare similarities or contrasts between the two groups given their different social standings, power dynamics and differences in cultural or spiritual ties to the SFs. Notably, one of the original headlines was exclusively worked on by the general community members group, referred to as CS group three in Mabasa and Mazizini (Table 8.1). Subsequently, this headline was compared and contrasted across the two study sites.

Table 8.1. Original headlines provided across the respective groups in Mabasa and Mazizini

Sites	Group	Original headline
Mabasa	CS group 1	<i>The sacred Emzinyeni forest and the rise in churches threatening the sacredness of the Funjwa forest</i>
	HG group 1	
	CS group 2	<i>Forest loss on account of tribal authority's lack of management</i>
	HG group 2	
	CS group 3	<i>Youth apathy towards cultural traditions and the sacred Funjwa forest undermines the ancestral importance of the Funjwa forest and erosion of cultural practices</i>
Mazizini	CS group 1	<i>The 'secret' of amaZizi amakhosi burial is a threat to their cultural heritage</i>
	HG group 1	
	CS group 2	<i>The constitution of the democratic government contributes to cultural breakdowns and neglect of traditions</i>
	HG group 2	
		CS group 3

8.3. Results

8.3.1. Desired futures for the preservation of the local cultural heritage of Mabasa and Mazizini

The last tier in Figures 8.1 and 8.2 presents the key message or outcome of the desired headlines developed by the CS and the HG groups. In Mabasa, all the groups except one emphasised the role of the TA and the royal family as the leading custodians of the SF (Figure 8.1). Additionally, HG-2 included the role of churches in ensuring the integrity of the SF as their desired headline expresses the need for cooperation between different stakeholders to preserve the local heritage. Lastly, in contrast to the other groups, HG-1 placed emphasis on the general community as proponents in conserving the community's heritage (Figure 8.1). For the Mazizini community, the desired headlines developed by

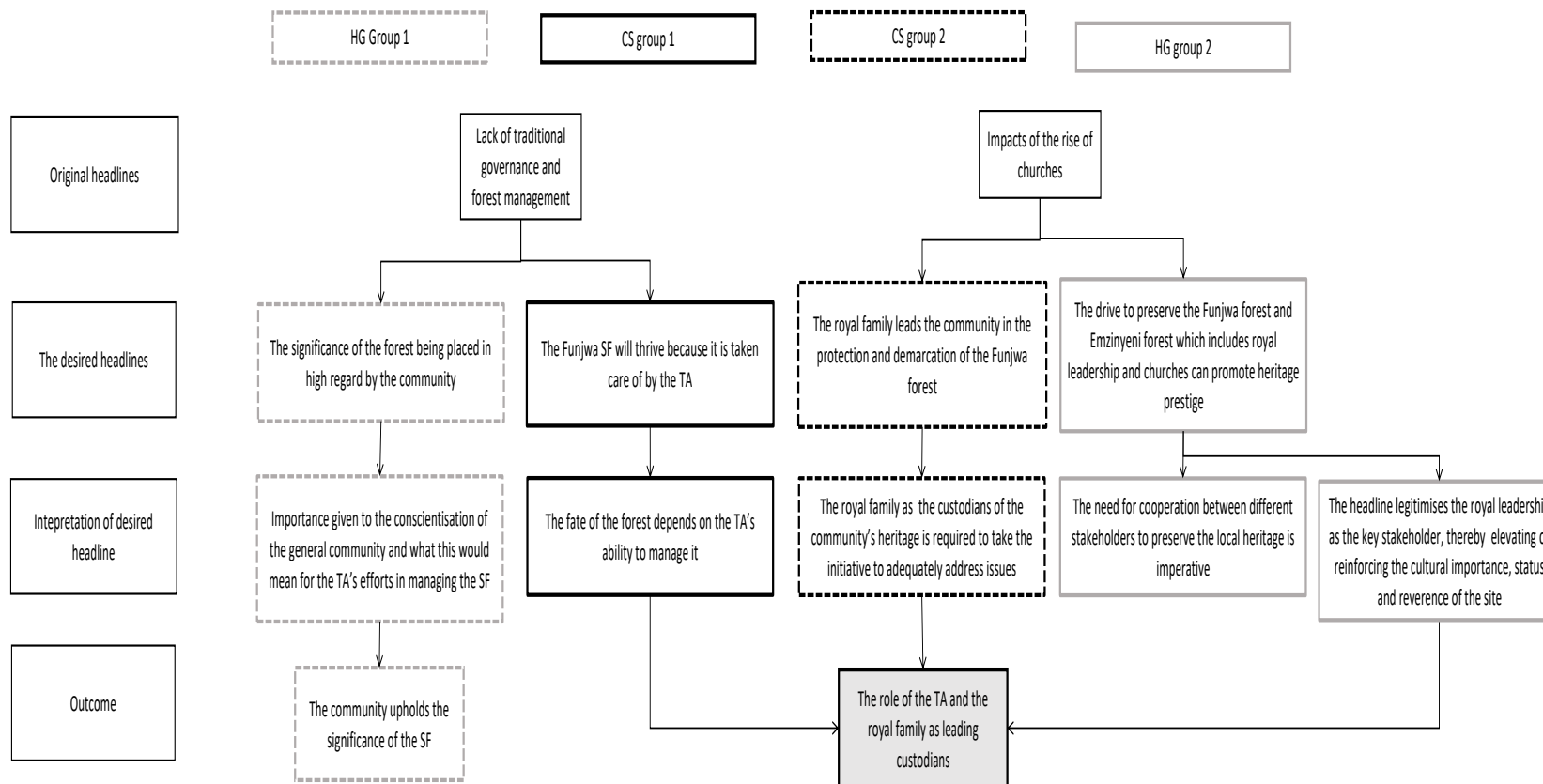


Figure 8.1. The conversion of the original headlines to desired headlines or futures, interpretation of the desired headlines and the primary focus of the desired headlines by Mabasa community members

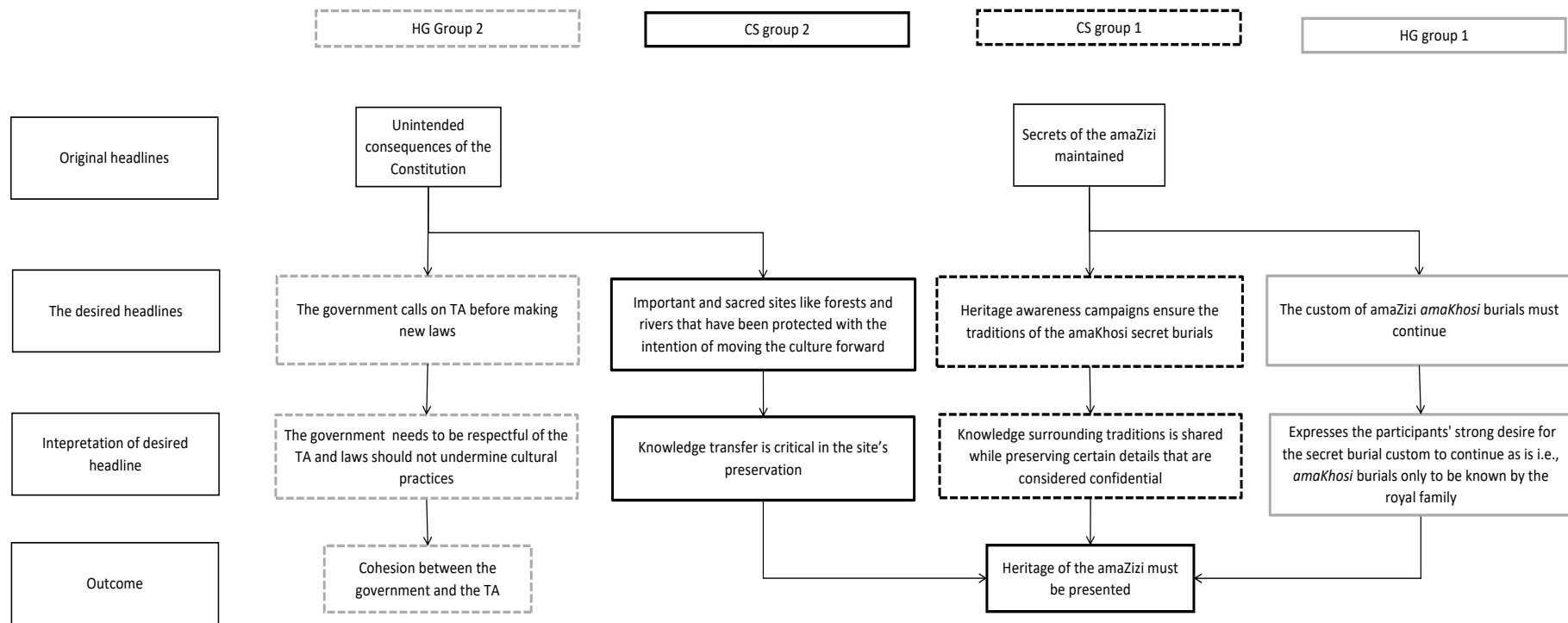


Figure 8.2. The conversion of the original headlines to desired headlines or futures, interpretation of the desired headlines and the primary focus of the desired headlines by Mazizini community members

the CS groups as well as the HG groups emphasise, either directly or indirectly, that the amaZizi heritage must be preserved (Figure 8.2). However, the outcomes in Figure 8.2 indicate a contrasting key message from the desired headline developed by the HG-1. In terms of the interpretation of the desired headlines, both the CS groups felt that knowledge transfer is critical in the site’s preservation, whereas the HG-1 emphasised that the amaZizi heritage must be preserved without the need for knowledge transfer amongst the general community. Only the HG-2 envisioned a future inclusive of the government in TA or local matters given the government's influence on the local cultural heritage (Figure 8.2). In contrast to Mabasa, all the amaZizi groups except one did not place any emphasis on a particular group of the community in their role of preserving the SF. Instead, the shared outcome illustrated in Figure 8.2 suggests that the preservation of the local heritage is an effort shared by all and is reflected in their desired headlines.

8.3.2. Youth disinterest in the cultural heritage of the Mabasa and Mazizini communities

The desired headline for the Mabasa CS group reflects an emotional and cultural engagement (Figure 8.3). It indicates the sentiments and attitudes of the youth concerning environmental and cultural preservation. Whereas the Mazizini desired headline in Figure 8.3 highlights institutional support and proactive measures to promote and preserve the local cultural heritage and knowledge amongst the youth.

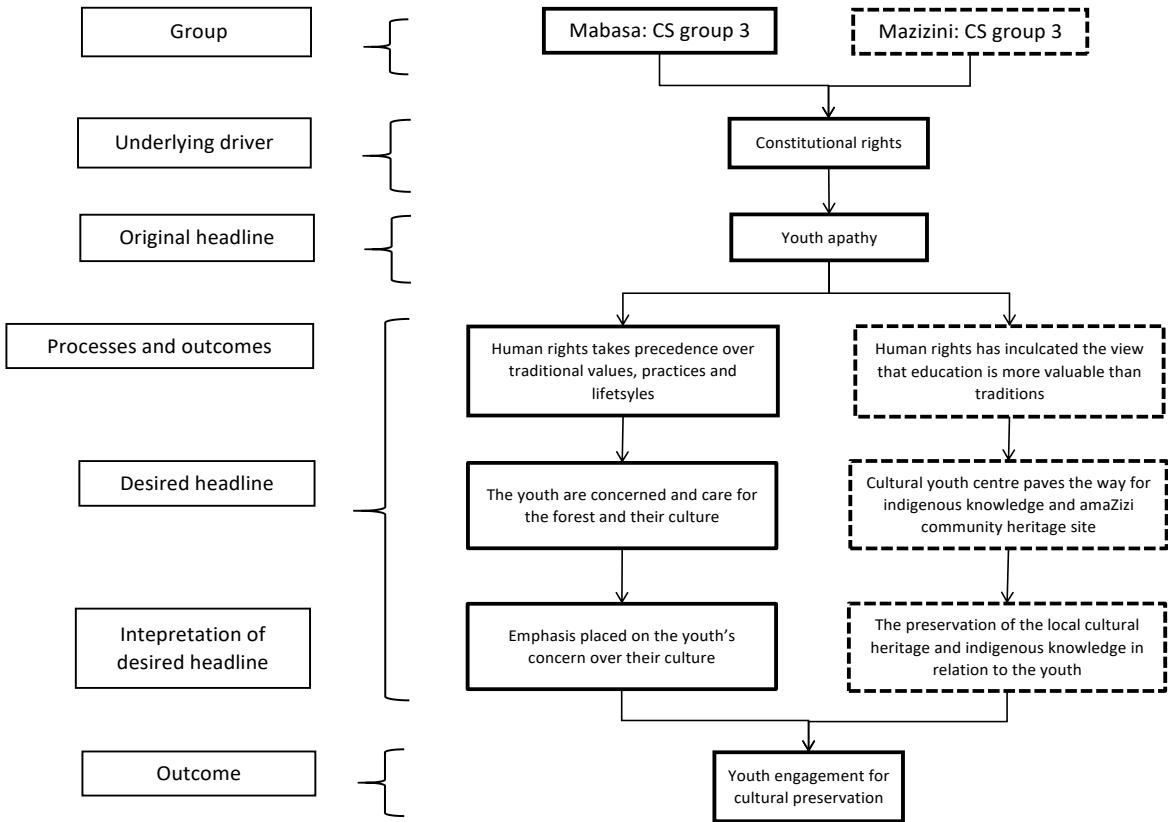


Figure 8.3. The main driving force and outcomes of issues concerning youth cultural disinterest, including the conversion of the original headline to participants' desired futures

8.3.3. Challenges faced in reaching the desired futures

Figures 8.4 and 8.5 illustrate the main underlying drivers shared by the groups that prevent or hinder the community from attaining their desired futures. For CS-1 of the Mabasa community who worked on the negative headline, "...the rise in churches...", shared how customs not being upheld undermines the TA's role in governing the site. The group explained that cultural practices are meant to be upheld by the leading custodians because they invariably govern the community and serve to enforce customs and traditions. With regard to the negative (original) headline about the decline in TA management of the SF provided to the CS-2, they mentioned that some practices have become "more like parties and less in the traditional sense", i.e., given the processes and outcomes as illustrated in the fourth tier (Figure 8.4). The group also shared some of the outcomes of the church's influence on the royal family and the broader community. This links to Chapter 4, where the church has been implicated in contributing to the lack of knowledge which has compromised knowledge transfer (Figure 8.4). Similarly, the HG-2 expressed concerns which coincided with some of those of the CS groups, i.e., customs not being upheld. However, they emphasised this issue as the underlying driving force, rather than resulting from an outcome. The group explained that the TA and the royal family's neglect in commemorating their traditions (which is raised in Chapter 6), contributes to the loss of history and diminishes the significance of the royal family. In contrast, HG group 1 believe that the level of unawareness has compromised the TA's management efforts (Figure 8.4). As such, Figure 8.4 illustrates factors hindering the awareness locals have about their heritage (most of which have been unpacked in detail in Chapter 4), and consequent outcomes.

For the Mazizini community, Figure 8.5 illustrates all but one group was concerned about local ignorance and the lack of knowledge transfer, which they felt compromised the biocultural conservation of the site. The CS-1 worked on the negative headline concerning the practice of customary secrecy hindering cultural preservation. They shared the outcomes of myths and customary secrecy, i.e., in terms of its effects on the local cultural values and beliefs. Likewise, the CS-2 acknowledged that knowledge gaps are influenced by government policies that threaten the local culture (which has been outlined in Chapter 4). Consequently, the group explained how knowledge acquired concerning the physical and social characteristics of the sacred site is imperative for the preservation of the site's heritage. The CS-2 participants that worked on the headline, "the constitution...contributes to cultural breakdown", shared factors or processes that have contributed to local ignorance or are attributed to lack of knowledge transfer. The HG-2 also worked on the "constitution" headline and shared that the government excludes the TA when making decisions. They also shared that when the government does decide to consult with the TA about important community concerns, they do so on short notice or involve only a minority (*inhlolovo*- selecting process for testing opinions or consultations) of TA

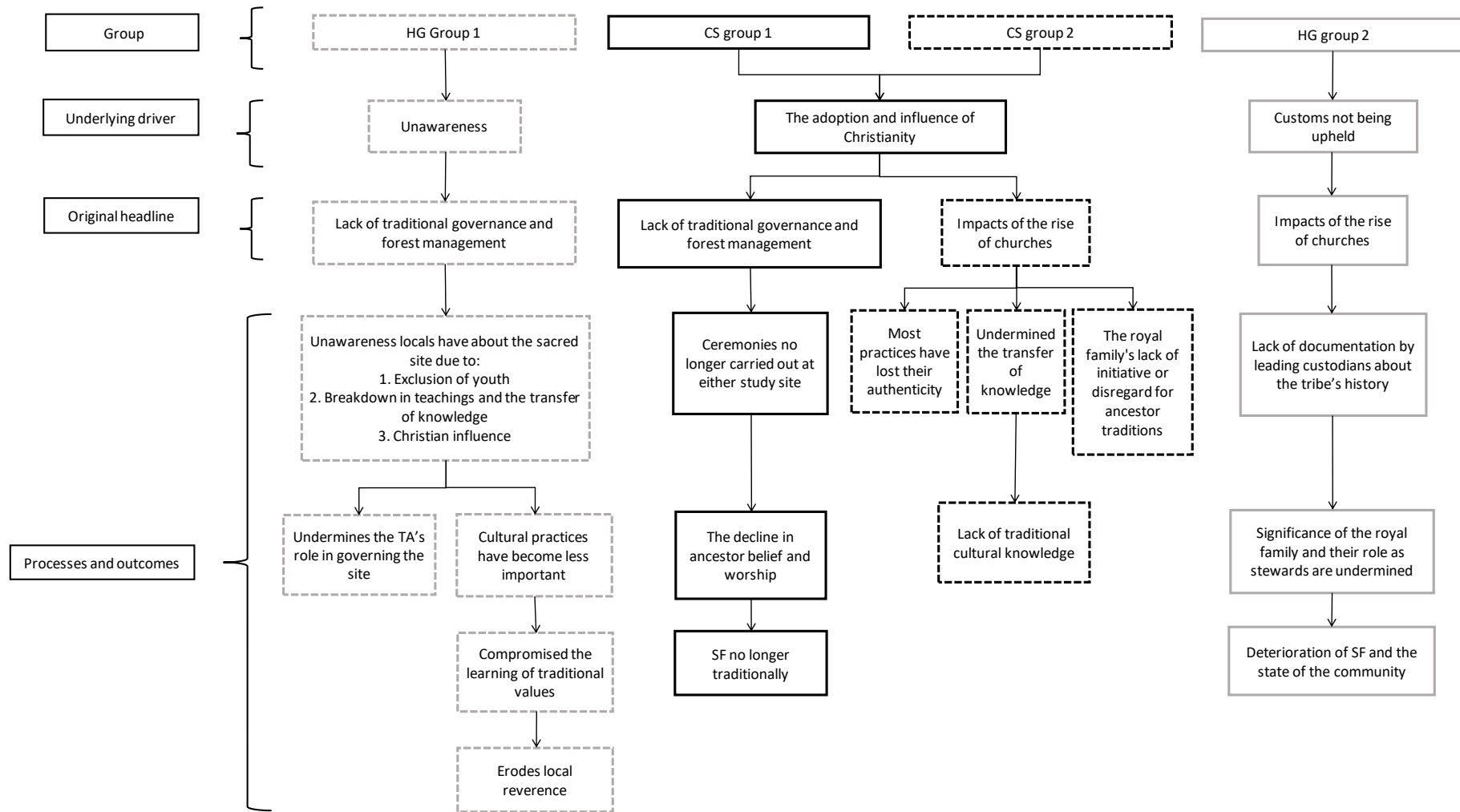


Figure 8.4. The main driving force and outcomes of the problems faced concerning the lack of TA management and the rise of churches in Mabasa

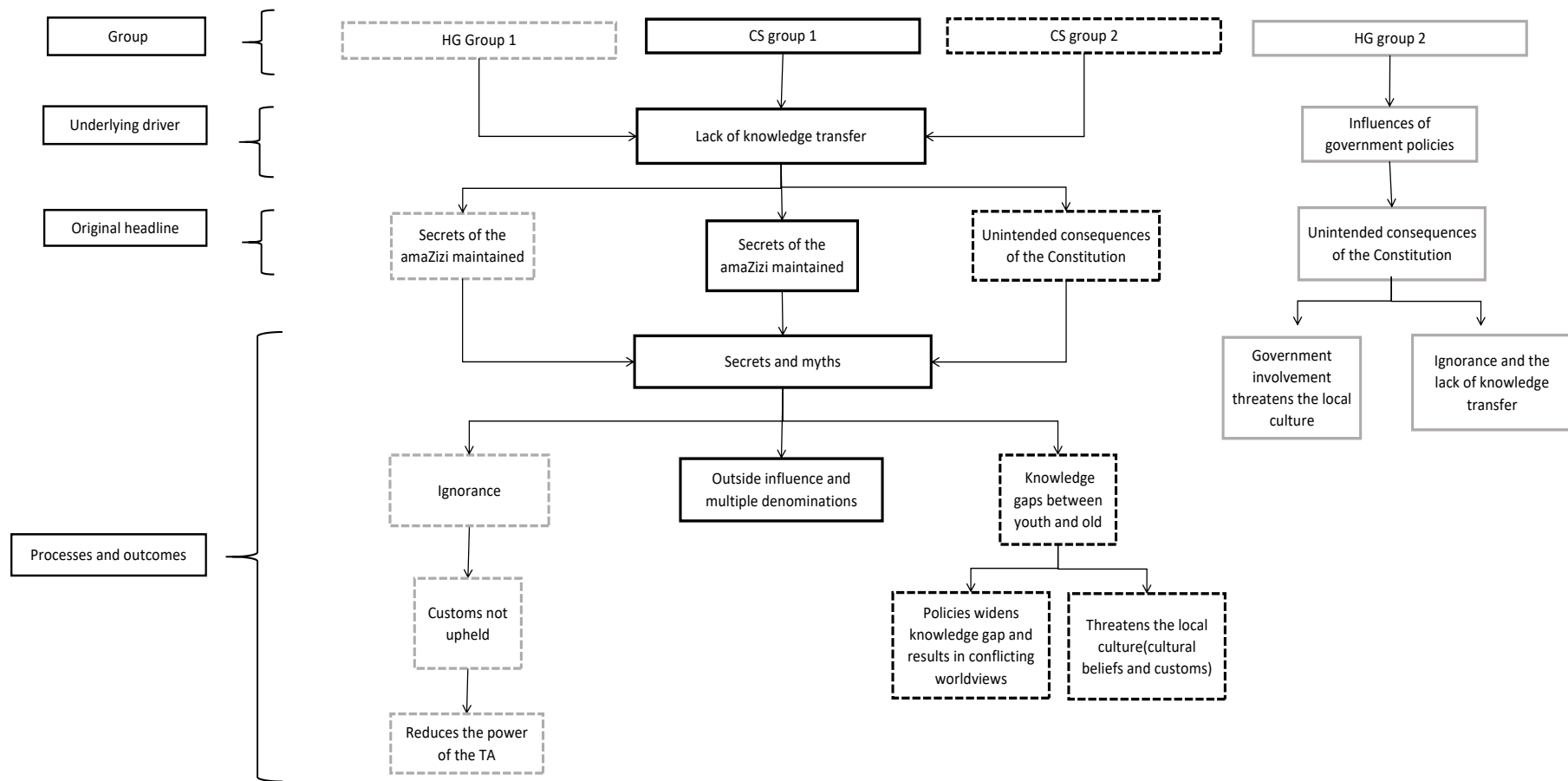


Figure 8.5. The main driving force and outcomes of the problems concerning the tradition of customary secrecy and the influences of the implementation constitution in Mazizini

members. They stated that this serves as an example of the government's continued circumvention and disrespect of the TA's hierarchy. Additionally, one of the participants further explained that a group of *izinduna* were approached by government officials to discuss and make decisions without the *Ndunankulu* and the *Nkosi* being present, which impacts the political cohesion between traditional governance and formal governance. On the other hand, the HG-1 (who focused on the headline on the implications of customary secrecy) provided different outcomes for the poor transmission of knowledge (Figure 8.5). Nonetheless, the group shared that the traditions of the *amaKhosi* burials are self-sustaining. Subsequently, they envisioned the community as upholding the heritage of the amaZizi's and their SF as is, i.e., the tradition only being known by the royal family, and emphasising that it should only be known by them.

8.3.4. Community responses for safeguarding SFs and cultural values

Given the challenges that are inhibiting or hindering the local communities from reaching the desired headlines, multiple measures were shared to overcome these challenges (Table 8.2). In Mabasa, concerning the lack of governance and forest management, CS-1 stated that the fate of the forest depends on the TA's involvement in its management. Based on this understanding, they suggested several measures that traversed both the ecological and cultural aspects were listed in Table 8.2. The scenario workshop participants claimed that ecological measures allude to good governance which is also meant to help with issues related to cattle herding and consequent trampling and over-grazing. Measures concerning cultural conservation efforts allow for greater transparency between the leaders and the community. Participants further noted that the cultural measures would help to instil or enhance spiritual values in the community which will aid in the site's protection and judicious use of resources. In terms of HG-1, measures were provided to address the knowledge gap and increase how people value the sacred site to overcome poor forest governance. They believe that promoting awareness about the SF amongst the locals will serve to instil understanding and reverence. The participants clarified that promoting awareness and conscientisation amongst the general community is meant to help with the TA's responsibilities and challenges in managing the sacred site. Permits were also suggested to help with TA management of the site by signifying the significance of the area and its contribution to the preservation of the site.

Concerning the impacts of the rise of churches in Mabasa presented in Table 8.2, both groups brought attention to the importance of stakeholder engagement. Both groups shared that cooperation and collaboration of stakeholders are deemed necessary in the dissemination of knowledge to address the loss of documented history. It was noted that youth engagement was the primary focus for knowledge dissemination or knowledge sharing. The CS-2 claimed that the site's restoration efforts (Table 8.2) will contribute to maintaining reverence through the inclusion of the youth. The CS-2 also noted that the restoration efforts should be hosted and led by the TA leaders which serves to legitimise their leadership. They explained that it is imperative for the royal family to play their role as the leading custodians of the community's heritage because they are believed to be inextricably linked to the cultural aspects of

the SF. Participants added that during events that are led by the royal family, they should remind people of their traditions and customs. The CS-2 participants further explained that restoration and commemoration efforts will encourage dialogue within the community, which is believed to ascertain locals' understanding of their ancestral “roots” and will foster a sense of pride, belonging and ownership of heritage.

Likewise, the HG-2 stated that to preserve the heritage of the forest, the cooperation and collaboration of stakeholders are needed to address the loss of history or knowledge in the area. Like the CS-2, the HG-2 claimed that the royal leadership and TA are needed to legitimise such initiatives, i.e., in planning and hosting local events where information about the local history is shared, with a primary focus on younger people. With regard to pamphlets and brochures (Table 8.2), the participants explained that these should highlight particular facets of the community's heritage, e.g., the lake, the SF, streams, etc., and should also include pictures or cartoons as powerful visual stimuli. In addition to documented forms of knowledge transfer, they explained that the cultural or information centres can be used for dialogues or discussions about the history of Mabasa. To promote participation, participants clarified that the workshops should be held in places where people are known to congregate, e.g., at schools, churches and during community meetings. Regardless of the important role of royal leadership or the TA, the groups also noted that each person has a responsibility to bridge the knowledge gap between the youth and the elders of the community. Furthermore, the groups claimed that the collaboration of stakeholders requires the government to aid in the preservation of local history through formal institutions like the education department, the Government Communication and Information System (GCIS to publish information in books and online), and through the Department of Cooperative Governance and Traditional Affairs (COGTA) (Table 8.2).

In Mazizini, the HG-1 felt confident that the younger members of the royal family are aware of the tradition of the *amaKhosi* burials, despite the challenges arising from the unintended consequences of the national constitution. However, they raised concerns about other traditional practices of the amaZizi. According to them, the youth are the ones who will ensure the continuance of amaZizi traditions and customs. They emphasised the importance of educating the youth about local cultural practices. To preserve the cultural heritage of the community, the participants proposed four strategies (Table 8.2). The participants elaborated on each of these four points: (1) the role of parents is considered pivotal in instilling values and reverences as key steps in adhering to and upholding cultural traditions, (2) local leaders need to come together to organise awareness campaigns where knowledge about the value of the environment, customs, and traditions is imparted.

Table 8.2. Solutions developed to address the issues that are preventing the ability to achieve the desired headlines for the respective communities

Community	Issues	Solution from respective groups	
		Community stewards	Heritage guardians
Mabasa	Lack of traditional governance and forest management	<p>1. Ecological measures:</p> <ul style="list-style-type: none"> -The prohibition of locals from constructing homes and plantations along the SF edge or in close proximity to the SF - Awareness raising by the TA about the importance of environment e.g., measures to curb invasive alien species - The implementation of environmental programmes like invasive alien species removal - Reintroducing forest guards would help with management and in dealing with law breakers <p>2. Cultural measures:</p> <ul style="list-style-type: none"> - To educate about the value of preserving cultural traditions - Transparent and frequent communication between local leaders and the community 	<p>Local awareness:</p> <ol style="list-style-type: none"> 1. Addressing the knowledge gaps and the loss of history through cultural centres and the establishment of a heritage reserve 2. Forest user permits
	Impacts of the rise of churches	<p>Greater inclusivity led by royal family as leading custodians:</p> <ol style="list-style-type: none"> 1. Restoration <ul style="list-style-type: none"> - Conducting or hosting meetings, workshops and campaigns (teaching the importance of the forest customs to the younger generation) - Preserve history through formal institutions - Collaborations are needed between the government and NGO - Proclaiming the site - Fencing the site 2. Commemoration of the ancestors 	<p>Addressing the lack of knowledge transfer:</p> <ol style="list-style-type: none"> 1. Stakeholder engagement needs to be legitimised by the royal leadership 2. Collaborations are needed between the government and NGOs to document the local history <ul style="list-style-type: none"> - Production of informational pamphlets - Workshops - Information centres e.g., libraries and archival centres - Local schools to include the local history published by government agencies
Mazizini	Unintended consequences of the Constitution	<p>Heritage to be preserved:</p> <ol style="list-style-type: none"> 1. Measures to conserve the local culture: <ul style="list-style-type: none"> - Historical pamphlets - Awareness campaigns - Community meetings - Iziqwele (meetings with older peers to teach the younger peers or regiment) - History lessons about the local heritage in schools - Workshops - Interdenominational cooperation 2. Measure to ensure secrecy is maintained <ul style="list-style-type: none"> - The establishment of permits for individuals - Fencing of the area - Imposition of penalties for lawbreakers - Reintroduction of nature guards 	<p>Preserve the local cultural heritage of the community especially amongst the youth:</p> <ol style="list-style-type: none"> 1. Instil values and teach heritage to children- parents to instill traditional values and teachings in their children 2. "Leaders must lead" by knowledge sharing and collaboration of the amaKhosi 3. Collaborations are needed with external organisations and especially with the government 4. TA should invite both the youth and the government for TA meeting and traditional events
	Secrets of the amaZizi maintained	<ol style="list-style-type: none"> 1. Ecological measures: <ul style="list-style-type: none"> - Reintroduce nature guards - Host educational workshops e.g., teaching about fire management practices (controlled fire burning, fire breaks, trace lines) and water management (to avoid washing clothes upstream) 2. Cultural measures: <ul style="list-style-type: none"> - Workshops - Meetings - History lessons - The government documents the local heritage taught in schools 	<p>Cooperation by government for better traditional governance:</p> <ol style="list-style-type: none"> 1. The government should consult with the <i>amaKhosi</i> to achieve cohesion 2. Engagement with TA should be regular and inclusive 3. To ensure TA is involved in the decision-making processes 4. The government to also attend TA meetings

Additionally, a collaboration between *amaKhosi* (Chiefs) is needed to discuss issues and enable the development of documented resolutions. Such a collaboration will help to overcome external pressures the TAs face from the government. Furthermore, (3) support received from external organisations and institutions to assist in the creation of booklets with information that educates schoolchildren about the

local cultural heritage and aids in environmental awareness was also encouraged. The FG and scenario workshop participants mentioned that some NGOs are currently involved in environmental and cultural heritage sites within the community (Section 8.3.2.2). Finally, (4) youth inclusion to gain insight into the history and affairs of the community during TA meetings is a necessary step for their succession into leadership roles. The CS-1 echoed the role of external organisations concerning the various measures developed to conserve the local culture (Table 8.2). The group also emphasised the importance of youth inclusion and like the Mabasa participants, the amaZizi participants explained that bridging the knowledge gap between the elders and the youth would foster an understanding. This, in turn, would help in addressing conflicting worldviews between the young and old that are influenced by government policies. It was noted that with the dissemination of knowledge on cultural heritage, a few measures were suggested to guarantee that increased transparency will not jeopardise the sacredness of the forest (Table 8.2). These measures would prevent infringement on the sacred site and aspects of secrecy during traditional practices, and would help conserve the ecological condition of the SF.

In terms of the customary secrecy as an issue (Table 8.2), the HG-2 placed a lot of emphasis on the collaboration between the government and the TA. Consequently, various steps are outlined in Table 8.2 concerning the role of the government towards better engagement with the TA. Participants explained that the government's presence serves as a sign of respect for the TA. Participants also shared that these meetings should be characterised by greater transparency. These steps for engagement will allow the government to consider and understand the issues faced by the TA, rather than interfering or making decisions without gaining sufficient input from the TA. Hence, the HG-2 participants explained that the government working with the TA when creating or passing laws, will help the government become more mindful and sensitive to cultural traditions. The cooperation between these two authorities was emphasised by the participants because the TA serves as a gateway into the community. They explained that the TA regularly addresses the concerns and challenges of the community, making them the closest governance structure to the community. The participants explained that if the government consults with the *amaKhosi* and the TA then cohesion between these institutions will be achieved. Lastly, the HG-2 mentioned that the lack of young people in meetings and events is something that the government can assist with by supporting local initiatives or workshops that actively engage youth. It was stated that these meetings and gatherings should be attended by maidens and the custodians of the maidens (the "mother" maiden and the *amaqhikiza*- chief maidens who are under the "mother" maiden). The same should be done for the male peer groups. However, emphasis was placed on the maidens because they are considered the "wealth" of the clan and are what makes "the clan".

Apart from the government-centred measures, the HG-2 also noted the importance of cooperation between the *amaKhosi* from different communities. They stated that the *amaKhosi* must have one voice to address issues collectively, particularly in dealing with political influence by the government. The political influence concerned their ability to govern their communities according to their traditional laws and customs, rather than conforming to the judicial system that may not reflect their customs or values.

Nonetheless, the HG-2 participants expressed their appreciation for Buthelezi (“Prince Mangosuthu Gatsha Buthelezi; a Zulu prince who served as the traditional prime minister to the Zulu royal family from 1954 until he died in 2023”) and the Ingonyama Trust (a landholding entity established by the government) contribution to the preservation of their traditions- “the Trust holds all tribal land for the ‘benefit, material welfare and social well-being of the communities. The sole trustee to land under Ingonyama Trust is His Majesty the King Misuzulu kaZwelithini” (<https://www.ingonyamatrust.org.za/>). On the other hand, the CS-2 placed emphasis on forms of knowledge dissemination (Table 8.2) that resonated with CS-2 that dealt with “unintended consequences of the Constitution” in Table 8.2.

Concerning youth apathy (Table 8.3), some of the measures to overcome youth challenges overlapped with other solutions outlined in Table 8.2. However, the Mabasa CS-3 added the need for consultations (*inhlolovo*) or discussions with the elderly, e.g., the elders and youth should have meetings like *imbizo* to share information where knowledgeable individuals are invited to teach and impart knowledge. The participants felt that addressing the knowledge gap would help young people develop empathy, a sense of responsibility, and appreciation for their heritage. Similar solutions were shared by the amaZizi participants concerning the role of leaders in imparting knowledge on the importance of the environment, customs, and traditions. However, in Mazizini, it was noted by CS-3 that the local schools are already involved in cultural activities as a means of preserving the local heritage, e.g., songs and dances (*ndlamu*), poetry, *ubuhle bentombi* for young girls, *isicathamiya* (nguni acapella), and *amahubo* (traditional hymns for the *Nkosi*).

Table 8.3. Suggested solutions to address youth apathy

Issues	Solutions	
	Mabasa: community stewards group	Mazizini: community stewards group
Youth apathy	1. Awareness campaigns about the Funjwa forest 2. Consultations (<i>inhlolovo</i>), discussions with the elderly or meetings like <i>imbizo</i> where knowledgeable individuals are invited to teach and impart knowledge	1. Awareness campaigns/ workshops 2. Inclusion of youth in meetings

Both the CS-3’s from Mabasa and Mazizini worked on the youth apathy (original) headline and shared the same concern about the influence of the national constitution as the underlying driver (Figure 8.3) that has resulted in traditional values being relegated to a lower priority.

8.3.5. Influence of local and external organisations

Although the community of Mabasa values the forest which is manifested in their desire to protect it (Chapter 5), the majority of the FG participants stated that no action has been taken by the community to address the threats of the Funjwa forest. They stated that there are no programmes that have been implemented for alien plant clearing, soil erosion control or to curb gum tree plantations. In contrast, the Mazizini community has established a local organisation called the Nhlankomo Monitoring Group (NMG) which manages the Nhlankomo Mountain. There is also another community organisation, AmaZizi Wildlife Conservation (AWC), which received support from external organisations such as

Wildtrust, the South African National Biodiversity Institute (SANBI) and Rand Water through the Water Wise project. According to the FG participants, the *Nkosi* does not offer support to these local organisations but he appreciates their efforts. Nevertheless, some of these organisations offer assistance and resources to the community and local organisations either on a regular or occasional basis. The *Nduna* added that these institutions and organisations offer employment for the local people. For example, these organisations provide firefighter training and teach locals how to create and manage fire breaks. The FG participants stated that there are a few community members who are involved in environmental management with the help of these external organisations.

The AWC carries out soil erosion control programmes initiated by Wildlands Conservation Trust. The FG participants explained that they plant *Vetiver zizanioides* higher up the mountain slope, which reduces the water and mud run-off before reaching the stone wall built at the foot of the mountain. This prevents the flooding of homes and home gardens. The FG participants and the *Nduna* remarked that the soil erosion programme has already proven beneficial in certain areas of Mazizini, despite the ward councillor's claim that it is ineffective because it only occurs every five years. Community members have also been involved in planting indigenous trees and removing invasive alien species. For example, invasive alien plants such as *Acacia mearnsii* (*umtolo*- Black Wattle), are removed near natural water sources. The ward councillor mentioned that since 2000, alien clearings has been conducted with assistance from a conservation agency. An extensive alien clearing took place between 2003-5 in which *Eucalyptus* and Black Wattle trees were removed. The *Nduna* was unaware of this clearing even though Google Earth imagery has shown extensive clearing adjacent to the Nhlangkomo forest.

8.3.6. Plans and policies

In terms of future interventions, the ward councillor of Mabasa like the CS and HG groups mentioned that to guarantee sustainable forest use, outsiders would be required to have and present permits to the TA or forest managers. These permits will inform forest managers or caretakers about who is using the forest, what is being used or harvested and how much is being harvested. The ward councillor stated that efforts to establish a museum or heritage site surrounding the sacred area of the forest have already been initiated. It is anticipated that this will be included into the biodiversity spatial plans and local economic development plans, such as the Integrated Development Plans (IDPs). The Funjwa forest being considered as a heritage site would help the implementation of controlled access and possible restricted use. It was stated that once the site has been deemed a heritage site, regulations would be implemented through policies to ensure the highest ethical standards are adhered to. The ward councillor explained that the inclusion of sacred sites in land use plans and regulations will help ensure that tourists, visitors and local users act in a manner that is not detrimental to the site. The site will be protected by formal structures with legal ramifications. He warned against the danger that the SFs significance would be lost if they were not included in land use plans, which may result in a lack of respect for these sites and their degradation. He emphasised the need for national recognition of the Funjwa forest's to ensure that future generations recognize its cultural value and significance. Thus, the inclusion of such sites in

land use plans and regulations also ensures the preservation of its history. Recognising the site as a heritage site further benefits the community. For example, if the site is declared as a tourist site, there will be more job opportunities in the community. The ward councillor stated that locals would be employed in a variety of professions such as finance, human resources, hospitality, maintenance, housekeeping and business e.g., craft-makers and tour guides. Another conservation measure was shared by the *Nduna*. He mentioned that fencing would be of paramount importance as it would be difficult to keep watch over the entire forest. This sentiment coincided with the ward councillor's, who emphasised that current regulations needed to be strengthened to ensure better preservation of the SF.

The *Nduna* believes that the community knows a lot about nature and its importance. However, both he and the ward councillor emphasised that additional information needs to be shared with the community to enhance their understanding. The ward councillor mentioned that there is a need to educate the community about the different parts of the plants, the importance of plant preservation, the reasons behind not starting fires out of season, the best ways to obtain or harvest medicines from different plants (e.g., whether some plants only need to be pruned or debarked), and how to be more sustainable. The ward councillor's and the *Nduna's* sentiments coincided with those shared during the scenario workshops concerning the importance to continue teaching the community about nature and raising awareness about the significance of the Funjwa site. Similarly, the amaZizi FG participants shared the same sentiments as the scenario workshop participants to address knowledge gaps through workshops. Participants also stated that traditional leaders need to be more involved in addressing environmental challenges in the community. Similar to the Mabasa's ward councillor, the amaZizi ward councillor mentioned the need to educate the community about plants, the importance of preserving plants, as well as sustainable harvesting techniques.

8.3.7. The future of the sacred Funjwa forest and the culturally significant Nhlinkomo forest

Although the FG participants in Mabasa expressed concern about the over-exploitation of the plants, they stated that the forest is healthy. They further stated that the forest would be healthy in the next 20 years as long as there is no sudden increase in the number of users, especially from outsiders. Likewise, the FG participants in Mazizini believe that the Nhlinkomo forest would expand and be able to recover because there would be less reliance on the forest; a trend that has already been apparent (Chapter 6). For example, people generally harvest for funerals and ceremonies which do not take place all the time. However, some FG participants felt that invasive alien species would spread rapidly causing the indigenous forest to shrink. Some of the FG participants added that soil erosion may persist if heavy rains and uncontrolled cattle grazing continue, or unless measures that are put in place prove ineffective. Nonetheless, the ward councillor pointed out that there aren't any serious concerns or threats to the Nhlinkomo forest, and therefore, does not require any major law enforcement or regulations. This is a consequence of what the *Nduna* stated about the community being capable of addressing environmental challenges and added that these challenges are minimal.

In terms of the cultural integrity of the communities, most of the FG participants in both communities expressed their optimism about the resurgence of their cultural heritage. They mentioned the growing popularity of the phrase *azbuyele amasisweni* (“return to the basics” or “go back to the fundamentals”) which indicates that locals want to return to their cultural origins. It was also noted that more recently, there have been attempts to revive the historical and deeper ancestral connections to the forest via the Mabasa commemoration events organised and hosted by the TA and royal family. As such the ward councillor and the *Nduna* of Mabasa mentioned that there is a renewed interest in the SF and its history which coincides with what one of the FG participants, Kwanele, stated, “a renaissance in the Zulu culture and Zulu traditions”. Only Mrs Ntuli from Mabasa was unsure if existing cultural practices would change or persist, and stated that “only time can tell”. However, a few of the elderly participants including Mr Njokweni believed that the heritage and beliefs of the Mabasa people are “finished” given that most of the existing practices are no longer authentic. Whereas the amaZizi FG participants feared that the younger generation would not see any need to co-exist and live in harmony with nature.

8.4. Discussion

8.4.1. Evaluating cultural shifts and external influences impacting the preservation of sacred forests

8.4.1.1. The loss of religiocultural beliefs and traditional leadership

Local traditional custodianship by leading figures or local institutions within communities have contributed to the conservation of many SFs throughout the world that have persisted through generations (Verschuuren, 2010; Mahaseth *et al.*, 2023). It appears that SFs in South Africa are primarily protected by ancestral spirits (Sinthumule, 2022). Additionally, the traditional leader, the *Nkosi*, and his council play a critical role in the conservation of SFs by supporting sustainable harvesting of natural resources, which is exemplified in the Ongoye forest (Lawes *et al.*, 2004) and Thathe Vondo SFs in South Africa (Sinthumule and Mashau, 2020). However, this study has already highlighted the decline in religiocultural beliefs (Chapter 4), of which taboos form part and “have been at the heart of the conservation of cultural heritage” (Odiaua, 2022: 5). Consequently, the findings in this study, as well as other literature, has shown that Western religions have undermined the significance of TAs (Babalola *et al.*, 2014). The fears that participants in Mabasa have been a reality in Nepal whereby local religious beliefs that had always contributed to conservation efforts, have weakened and have compromised the preservation of their sacred groves (Mahaseth *et al.*, 2023). The belief that the biocultural heritage of the Mabasa community is primarily at risk due to the *Nkosi* and his council’s lack of preserving the community's cultural heritage, contrasts with the eastern area of the Musengezi River under the Mid-Zambezi Rural Development Project reported by Byers *et al.* (2001). The project indicated better forest conservation on the east side of the river likely due to the stronger influence of traditional leaders despite having a higher population density than the west side (Byers *et al.*, 2001). Like Mabasa, the amaZizi

community's customs and practices which are not upheld are a result of the reduced power of the TA and "outside" influences.

Pandey and Rao (2002) revealed that traditional leadership is believed to be based on ascribed values, which correlate to the local traditions of Mabasa and Mazizini. Moreover, when leading custodians uphold cultural practices, they help to preserve the cultural and spiritual values associated with SFs. These values appear to be inherently sustainable. Hence, the erosion of traditional cultural beliefs and values threatens the long-term sustainability of SFs and fragments locally held biocultural associations that have survived for millennia (Dudley *et al.*, 2010; Shengii, 2012; Wild *et al.*, 2010; Kandari *et al.*, 2014). Subsequently, the abandonment of traditional practices associated with SNS inevitably impedes traditional governance. Despite the emphasis placed on traditional leadership in both study sites, the role and responsibility of local community members in the sites' preservation were also pointed out by the local leaders of Mabasa and Mazizini.

8.4.1.2. Awareness, teachings and the preservation of cultural value

In Mabasa, the extent of inadequacy of traditional leadership become evident through the repeated "attempts" by previous *amaKhosi* to raise awareness about the sacred Funjwa site (Chapter 4), revealing challenges in sustaining cultural knowledge and values. Given the lack of awareness of the site's sacred significance, the issue of "conscientisation" highlighted the need to strengthen community-based management of the forest and maintain cultural practices that foster awareness and stewardship. According to Pandey and Rao (2002) practising traditional rituals and ceremonies is not only indicative of local traditional belief but can contribute to local ecological conservation by reinforcing cultural connections to place. Therefore, amidst the growing detachment from traditional practices, understanding local perceptions and values of the sacred in nature and its interrelationships is imperative for the conservation of SFs (Ballullaya *et al.*, 2019). The significance and value of SFs upheld by community members appear to be possible if they are knowledgeable about the sacred or cultural significance of the site.

The inadequate system of knowledge transfer as well as the neglect of ancestral traditions has been attributed to the influence of some churches in the community. Some of the churches have contributed to the erosion of knowledge, which compromises traditional values and customs passed down to younger generations. The lack of transfer of customs and traditions, including effective methods for transferring knowledge, has affected the preservation of customs in both communities. The breakdown in intergenerational knowledge transfer has also been exacerbated by other outside influences of modernisation and consequent lifestyle changes (Chapter 6). These influences have similarly threatened various other SFs resulting in a loss of cultural and ecological importance among local people (Kandari *et al.*, 2014).

In Mazizini, the results suggest that the practice of customary secrecy was found to limit general awareness among some community members, detrimental to the preservation and adherence to the amaZizi heritage participants amongst the ordinary community members' group. Nevertheless, both the scenario workshop groups consider the continuation of this practice pivotal, as they view it as an indicator of the integrity of the cultural heritage. The amaZizi history, in general, is passed down through generations in forms similar to those reported by Shopes (2011). This includes knowledge passed down through formal, rehearsed storytelling by respected and knowledgeable figures in the community, as well as "informal conversations about the old days among family members" (Shopes, 2011: 1).

Like Mokgoro (1999) noted that the power exerted by the Bill of Rights over cultural institutions and practices threatens aspects of the culture that conflict with the constitution, the democratic government has made it mandatory for customary laws and cultural rights to align with the constitution. Despite traditional religions being fluid and adaptive, as they are responsive to social needs of the community, they have also been reshaped by colonial, apartheid, and post-apartheid governance systems, including constitutional requirements for alignment with the Bill of Rights (Goodsell, 2007; Mokgoro, 1999). During the colonial period, it was made compulsory for these laws to be written, and they were later modified during the apartheid regime (Goodsell, 2007). This has contributed to customary laws being viewed as unresponsive and outdated, which undermined their cultural value.

8.4.1.3. Youth apathy and the outcomes of constitutional rights for local cultural traditions

As the study has already found, this chapter also highlights the growing concern among the locals, especially amongst the elders, about younger generations becoming less involved in traditional practices, which they fear could erode the community's cultural heritage. Cultural traditions and customs are being outgrown by the youth due to various reasons raised in Chapter 4. The lack of knowledge among the youth in Mabasa and Mazizini regarding their local history or traditions poses a threat to the local cultural heritage. This resonates with much of the research conducted on the Sanskrit SFs in India, which has acknowledged that there has been a gradual shift in cultural norms that has weakened the protection of the SFs as well as the traditions that are connected to them (Ormsby, 2013). As this study has already demonstrated, two of the main issues affecting the youth are the influences of Western education and their Constitutional rights, e.g., the right to education. Concerning the former, Byers *et al.* (2001) shared that the youth's lack of interest in learning about their sacred site/s stems from their perception that traditional practices and customs are outdated or inferior. Whilst the latter, i.e., the negative implications of Constitutional rights, have been particularly skewed toward the youth. The implications of Constitutional rights have undermined knowledge sharing and mutual respect as the youth have become less inclined to understand the importance of their heritage and why it should be preserved. The youth have adapted to modern ways of thinking, which has resulted in the loss of significance over religiocultural beliefs (Kandari *et al.*, 2014). In addition to the Constitution, the scenario workshop participants' claims concerning the implementation of government policies and laws suggests that these could hinder the "culture from moving forward". Similar to the Ugandan Constitution which recognises

customs and traditions that align with the Bill of Rights (Mujuzi, 2020), the South African Constitution prioritises individual rights. While the notion of individual rights was not entirely absent in pre-colonial African societies, the formulation of rights within South Africa's constitutional framework emerged from Western legal traditions and differs from the communal orientation embedded in many customary systems.

8.4.2. Community response: bridging cultural heritage and environmental stewardship

8.4.2.1. Dual custodianship of the royal family and traditional authority

The TA and the royal family, collectively, are the leading custodians of the SFs but play different roles. Both entities are meant to govern the community and the SF, however, the royal family is particularly responsible for maintaining the cultural significance and the spiritual potency of the SFs. The measures concerning restoration and commemoration highlight the dual role the royal family plays in the cultural education and physical preservation of the SF. Restoration measures (Table 8.2) seem to be aimed at maintaining and reviving the cultural significance and spiritual potency of the SF that serves to protect the site against unsustainable use and disregard of forest customs. On the other hand, commemoration practices for the ancestors were considered integral in overcoming the negative impacts of external influences, such as the adoption of Western beliefs, and preserving history through the leadership of the royal family. A similar sentiment was shared by Ormsby (2013), emphasising the importance of renewing traditions and reviving past ceremonies associated with SFs. The commemoration practices also align with ensuring spiritual potency and highlight the biocultural value of SNS. For instance, the ceremonies, prayers and offerings to honour and appease the spirits that are performed by the owners or custodians of such sites help to keep the spirits alive in these SNS (Sinthumule, 2022). The adherence to cultural traditional practices serves to maintain the sense of heritage within a community as stewards of ancestral customs. Commemoration practices reinforce the understanding that traditional values and practices serve to maintain the ecological significance of SFs. "Community traditions offer a way to achieve effective local conservation" (Ormsby *et al.*, 2010: 324). Consequently, the royal family needs to lead initiatives concerning the community's heritage because the royal family is inextricably linked to the culture. The power and authority of the local chief over the community are closely connected or intrinsically linked to his role as the supreme custodian and protector of the SF (Schaaf and Rossler, 2010). Leading traditional practices serves to ensure the respect and significance of the TA in the community amongst local community members who then abide by the traditional customs that serve to conserve the biocultural integrity of the SF. Subsequently, efforts towards conserving the cultural integrity of the community invariably serve to protect the ecological condition of the SFs (Mahaseth *et al.*, 2023).

8.4.2.2. Addressing knowledge gaps and awareness raising

The two main problems raised within Mabasa include the lack of awareness and knowledge. Parallel to the findings of Ormsby (2013), awareness campaigns and education programmes that emphasise the

ecological and spiritual benefits of such forests help reinforce rules of use in the SFs. Kandari *et al.* (2014: 8) emphasised that awareness building about the importance of SFs "is a first and foremost step needed to be taken for the revitalization of these traditional values, practices and beliefs among the youth". The important role of being aware of sacred significance was further illustrated by the TA members of Mabasa, who did not attribute the lack of management of the SF to themselves. Instead, they highlighted factors impeding local awareness of their heritage as the primary challenge facing the TA. Therefore, to address the knowledge gaps and increase the community's conscientiousness, discussions between the leaders and the community through the establishment of cultural centres, heritage sites or information centres, where community members are taught about the preservation of traditions and their significance is needed.

Apart from involving the youth in cultural practices, educating them about the cultural and environmental importance of SFs, which was also done in Malshegu community (Nganso, 2012), is pivotal to promote adherence to rules for the preservation and protection of SFs. The youth featured prominently in the solutions shared across both communities as it coincides with "TEK and related biocultural resources are eroding among the younger generation" (Singh *et al.*, 2010: 529). Youth as agents of change require radical measures such as the change in the local schooling curriculum to aid in the sustainable transfer of TEK from one generation to another. This was a sentiment shared by Ormsby (2013) suggesting that educational programmes about SFs could be incorporated as part of the education programme in schools or at the community level. Similarly, Sinthumule and Mashua (2020) also pointed out the need for TEK to be part of the school curriculum to transfer knowledge to aid in the preservation of the remaining forest. Other suggestions for knowledge transfer have been implemented by the local Trust in Kodagu, Karnataka, India, where posters are produced about the importance of SFs and the need for its preservation, with the younger generation as their intended audience (Ormsby, 2013). Knowledge transfer may also serve as a means to overcome the challenges of the Constitution that have fueled the gap between the youth and the elderly and reconcile their conflicting worldviews, thereby aiding in the preservation of traditional customs and practices.

Additionally, both communities believed that knowledge not being shared about the culture has ecological implications. This resonates with Babalola *et al.* (2014), regarding the need to strengthen traditional knowledge and beliefs that support and serve to curb unsustainable forest use and to ensure its integrity. Consequently, environmental education or programmes have been advocated to strengthen sustainable practices and contribute to biodiversity conservation. Similarly, Wild *et al.* (2010) encouraged the development of greater public awareness and education programmes regarding the concept of SNS at national and international levels. Although locals from both communities were being informed about nature, some residents still do not know how to conserve nature. For example, locals plant invasive alien species unintentionally, merely because of the plant's beauty which contributes to the increase in invasive alien species. Therefore, educational workshops are needed to help guide the community and strengthen conservation activities (Mahaseth *et al.*, 2023). Educational workshops also

create awareness of the sacred significance of the site and the importance of biocultural conservation, which would help bridge the gap between outsider and local use, particularly in Mabasa. A long process of encouraging and developing an in-depth understanding of traditional cultural beliefs and local practices with the SNS is necessary for the protection and veneration of outsider forest users (Shengii, 2012).

8.4.2.3. Collaborative conservation efforts

Maintaining a healthy forest is imperative to preserve a site's cultural integrity because degradation of the forest compromises a site's cultural significance. As a result, knowledge sharing requires the integration of disciplines. To assure conservation action and to address the inherent uncertainty of these complex social-ecological systems, long-term capacity building and the integration of worldviews are necessary (Gavin *et al.*, 2015). Given the myriad challenges the SFs in both communities face and the consequent need for greater knowledge dissemination as well as the integration of knowledge or disciplines, there is a need for collaborations and co-management efforts for the preservation of SFs. Such collaborations require the assistance and expertise of the government, NGOs and other institutions. Collaborative efforts contribute to building relationships and fostering support for the preservation of SFs (Ormsby, 2013). Moreover, the local cultural history has not been officially documented, which makes these collaborations significant for curbing the loss of history. It is anticipated that collaborations with local organisations and community leaders will also enable the implementation of comprehensive awareness campaigns concerning SF. Additionally, the role of external organisations or institutions aiding in documenting the local histories contributes towards maintaining the values upheld by the youth and bridging the knowledge gap between the youth and the elderly.

In Mazizini, the adverse effects concerning the practice of customary secrecy suggest the need for some transparency. Like Mabasa the transfer of knowledge or knowledge sharing was key to solving threats faced by the SF or the culturally significant forests. Efforts towards creating dialogue and interest within the community surrounding the local heritage can be ascertained by fostering an understanding of their culture (Table 8.2). Consequently, collaborations between government and NGOs were noted for their relevance in knowledge sharing. The significance of collaborations is evident in the existing local amaZizi organisations that work towards conserving the culturally significant Nhlankomo forest and mountain, which also collaborate with private organisations and the government to support the management of the Nhlankomo forest. However, communities in India oppose the idea of the Government controlling and preserving such sites because most religious forests are disappearing as a result of government involvement (Mahaseth *et al.*, 2023). Instead measures like fencing, forest guards and the use of permits were suggested to maintain, or at least serve to protect, the practice of customary secrecy (Table 8.2), while preserving the ecological condition of the SF. Nevertheless, this study underscores the necessity for effective collaborations to be legitimised or headed by the royal family. Biocultural conservation successes can be achieved by the TA taking the initiative in planning and hosting local events and on-the-ground management efforts.

Permits were suggested by both communities as a means to encourage accountability of users, particularly in addressing outsider use of the forest and suggesting the significance of the site. The use of forest permits to harvest resources has led to regulated use, for example, in the Maya Biosphere Reserve (MBR), Guatemala, where the collection of chicle (a natural gum) is accessed with the use of a permit (Taylor, 2010). This permit allows specific forest concessions and restricts users to certain areas (Taylor, 2010). Permits were further considered as a measure to help the TA with their responsibilities and the challenges they face in managing the sacred site. So, even though the TA did not explicitly acknowledge their shortcomings, the suggested need for the use of permits is indicative of their inadequacy in overseeing the site. In addition to the use of permits, forest guards were considered even though many SFs survive today without benefit from state wardens or education centres (Oviedo *et al.*, 2007; Ballullaya *et al.*, 2019). Fencing was also suggested to help with the challenge of not having adequate numbers of forest guards. In Karnataka, India, several communities have either fenced or intend to do so to curb encroachment as more people settle closer to the forest (Ormsby, 2013). Similarly, fencing could help with the encroachment of homes and plantations in Mabasa. However, concerns about the previous fencing of the Funjwa forest (outlined in Chapter 4) proved challenging because it resulted in the exclusion of locals who depended on the forest, which was exacerbated by unfair benefit-sharing. Digging trenches around the SF was considered an alternative, as it could help address human encroachment, cattle herding and poaching in and surrounding the SF, whilst having minimal impact on the movement of wildlife (Ormsby, 2013).

Conservation efforts demand the involvement of various actors from various sectors, e.g., government administration bodies, religious and community institutions and heritage conservation organizations, environmentalists, etc., to assure sustainability (Mekonnen *et al.*, 2022). Consistent with the findings of Mekonnen *et al.* (2022), it is imperative that local communities and government representatives engage in collaborative efforts to co-manage and legally protect the SF. Berkes *et al.* (1991 cited in Mahaseth *et al.*, 2023) defined co-management as the sharing of power and responsibility between the government and local resource users. Co-management also known as collaborative management, requires locals to be "educated and guided to strengthen conservation activities" and has been recognised for addressing the gap between sacred areas and local stakeholders (Mahaseth *et al.*, 2023: 332). Similarly, Ormsby *et al.* (2010: 324) noted that to counter current threats faced by the SNS communities, renewing community traditions is crucial and that the "residents must stay involved in forest management through reviving ceremonies, awareness campaigns, and education on the ecological and spiritual benefits of the forests". Subsequently, efforts for cultural conservation require transparency between leaders and the community to help facilitate knowledge transfer and in instilling spiritual values within the community. For instance, the involvement of different stakeholders to engage in efforts to document history for the transfer of knowledge and to preserve the heritage of the Funjwa forest and *Nkosi* Funjwa's legacy is considered necessary. This study concurs with Mekonnen *et al.* (2022) in understanding that the conservation of cultural heritage is a complex task that needs to be undertaken by multiple actors or stakeholders to

enhance and sustain efforts. However, reservations concerning the involvement of outsiders in preserving the history of the local amaZizi community as it is framed in the belief that the tradition of the *amaKhosi* burials should remain a secret by the royal family. This sentiment and certainty surrounding the integrity of the local amaZizi cultural heritage amongst the TA members denote the significance of cultural beliefs and practices. This significance aligns with the views of Ohaja and Anyim (2021), who allude to cultural integrity given that rituals are inherited from their forefathers and transferred across generations. The significance of these rituals is also situated in the broader context of Africa, where they are not considered outdated but rather an “ongoing and crucial aspect of African existence” (Ohaja and Anyim, 2021: 3). Furthermore, to provide the necessary protection to the SFs and to maintain their sanctity it is imperative that cooperation of the people is extended, i.e., surrounding villages or communities need to be educated about the significance of the SF and guided for sustaining the sanctity of the sacred site (Kandari *et al.*, 2014). Similarly, the findings revealed that 94% of the participants encouraged “other villages to respect TEK to save the remaining forest under communal management” (Sinthumule and Mashua, 2020: 8).

8.4.2.4. The devolution of power and progressive laws towards community stewardship

The relationship between the government and the TA should be based on a deep respect for traditional leadership and cultural traditions to ensure that government actions and policies align with cultural values. Yuan *et al.* (2019) also revealed the need for change in government and state authority attitudes towards traditional conservation practices. Likewise, Mekonnen *et al.* (2022) highlighted the need for government and political leaders in developing countries, like Ethiopia, to have a positive attitude and understanding of the relevance of cultural heritage. Therefore, this study suggests that a viable avenue for a bottom-up approach would be to foster respect between the government and the TA, which can be better facilitated if good relationships are fostered between and amongst the TAs themselves.

A bottom-up approach advocating for the devolution of power and governance of SFs and local resources to local chiefs and local communities is necessary (Yuan *et al.*, 2019). For instance, while the TA and the local community appreciate the help from the government and other private organisations in aiding forest management, they would prefer to see less involvement in cultural affairs concerning the SF. This concurs with Goodsell (2007) who stated that the state should refrain from regulating or creating laws that govern culture or traditions, due to culture being inherently dynamic and, consequently customs and practices change over time. As such, there should be no legal interventions in cultural practices that conflict with public interests. Additionally, Goodsell (2007) added that courts that influence customary laws and traditional governance structures should work with local government structures to help develop or redo customary laws and regulations by considering the impacts they have on local traditional practices and the culture. Thus, the suggestion of collaborations between *amaKhosi* may be the first step towards greater progress in avoiding political interference by the government. Nonetheless, measures surrounding greater inclusivity of TA with the government are meant to increase the TA's significance and contribution to local community matters and conservation efforts.

Consequently, progressive laws have been passed, granting communities significant rights, ownership and responsibility to conserve their natural resources (Mahaseth *et al.*, 2023). This allowed communities the opportunity and right to regain control as stewards of nature, protect biodiversity and “advancing the common good” (Mahaseth *et al.*, 2023: 331). The importance of greater inclusivity resonates with Verschuuren (2019 cited in Tatay and Merino, 2023), who argued that it is not enough to just listen to Indigenous voices, instead their views should be treated equally in conservation efforts. Consequently, inclusivity is deemed necessary during the creation of laws and policies which may have an impact on local traditions and culture. If there is greater inclusivity of the TA, then government involvement in the community may not be seen as an interference or viewed as meddling. This interference may stem from what Mokgoro (1999) discussed regarding the South African Bill of Rights, which implicates cultural identity by allowing individuals from the community to challenge customary laws, some of which do not align with the constitution or are not recognised by the state, in a competent court. Furthermore, the findings suggest that greater inclusivity of the government will prevent the autonomy and relevance of the TA from being undermined and will foster cohesion between the formal and informal structures, which aligns with the views of Goodsell (2007) and Mujuzi (2020) concerning the involvement of government. However, there are lessons to be learned from the predicament once faced in India, where most religious forests are disappearing and communities are opposing “the idea of the Government controlling and preserving natural resources to safeguard their environment” (Mahaseth *et al.*, 2023: 329). Whilst the Mazizini community has proven capable of addressing environmental challenges, through local community organisations that have been initiated with the help of external organisations and the government.

8.4.3. Formalisation of sacred natural sites, policies and institutions

Indigenous people and local communities (IPLCs) continue to face challenges to fully participate in the development and implementation of biodiversity policy at local, regional and global levels (Reyes-García *et al.*, 2021). As such, it is important to strengthen current laws. For instance, the current zero draft of the post-2020 biodiversity framework still reiterates the same long-standing calls for the promotion and incorporation of traditional knowledge, including regular and complete participation of IPLCs (Reyes-García *et al.*, 2021). However, there are no concrete measures to achieve such steps in the biodiversity framework. Policies need “a fundamental system-wide reorganisation” that should be implemented at various scales to slow down biodiversity loss (Reyes-García *et al.*, 2021: 2). This reorganisation should include “modified judicial approaches, legislative proposals, regulatory reforms...property rights models, or reliance on international human rights law” (Barclay and Steele, 2020: 1297-8). Currently, sacred sites in South Africa do not enjoy legal recognition and as a result, the custodians of these sites do not have property rights or legal and intellectual ownership over their SNS (Sinthumule, 2022). However, in the case of Mabasa, the Funjwa forest hopes to be considered a heritage site, which allows for the legal formalisation of the site being protected by regulations and policies. For instance, legal recognition of such sites in some cases as outlined by Mahaseth *et al.*, (2023) has

increased the decision-making power over natural resources managed and controlled by the local traditional authorities.

Legal recognition regulates local use and helps in landmarking the area on a national scale to minimise any threats to the site including those caused by tourists. This coincides with Mahaseth *et al.* (2023) argument that SFs ought to be legally protected to help address cultural changes that have undermined religious forests and traditional forms of governance as protection regimes. Therefore, the biological and cultural value of these SFs can be preserved via legal institutional reform that protects customary laws and land rights surrounding SFs for both the local communities and the SF under legal protection (Mahaseth *et al.*, 2023). The Funjwa site being transformed into a heritage site is also aimed at being nationally recognised because formal recognition and these sites reduce the risk of these SNS becoming unknown. Apart from national recognition of the sacred Funjwa forest, Ormsby *et al.* (2010) shared the importance of international recognition of SNS to attract funding for effective conservation management options. It is for this reason that it is important to include these SFs under the protected area network to ensure their conservation (Mahaseth *et al.*, 2023). It is noted that the creation of a heritage site appears to be a better option than such sites being proclaimed as protected areas. For instance, Chandrakanth *et al.* (2004 cited in Ormsby *et al.*, 2010) contend that sacred groves should not be classified as State Reserve Forests because this would remove the local community's management control. Such classification or government ownership would alienate the local people from their groves, which was evident in Kodagu, Karnataka, India (Ormsby, 2013). This alienation undermines the motivation of the local community to conserve the land as it would no longer belong to them (Ormsby *et al.*, 2010). Moreover, Ormsby (2013) raised concerns that while adding SFs to the national protected area system may strengthen the protection of the sacred site, it could also compromise the spiritual value and inevitably affect its conservation value. Therefore, care needs to be taken when classifying such sites as reserves or state forests because management of these sites would shift to government ownership.

Given the historical power imbalances, IPLCs should be included in SNS research and policymaking, speaking and acting for themselves (Tatay and Merino, 2023). The findings in this study have suggested that it is integral that the residents are involved in the management of the SF, which is a similar view shared by Ormsby (2013). Consequently, forest management systems in India, as opposed to many other developing nations, have been decentralised, i.e., the rights and responsibilities of local actors and institutions have increased (Mahaseth *et al.*, 2023). An effective conservation strategy requires the government and other institutions to understand traditional beliefs, values and uses. This approach recognises, considers and incorporates the traditional spiritual motivations behind the conservation of some forests, challenging the claim that conservation is solely motivated by direct, material or economic benefit (Byers *et al.*, 2001). Instead, taboos and cultural practices are complex and often not well understood by those who observe them from outside the community, particularly scientists and policy-makers. Effective conservation must involve IPLCs and other stakeholders to create nuanced approaches that consider the cultural and spiritual significance of these places. Therefore, natural scientists,

polymakers, and protected area managers should work closely with IPLCs to ensure that conservation strategies are not simplistic or like that of national parks (Tatay and Merino, 2023). The inclusion of IPLCs should allow them to participate actively wherein their cultural and religious backgrounds are respected (Tatay and Merino, 2023). Given that each SF has a unique history with different cultures and customs, 'one-size fits all' policies like making them government-managed protected areas will not work (Ormsby *et al.*, 2010).

Finally, whilst Verschuuren (2010) has claimed that tourism associated with the heritage site may have detrimental impacts on biocultural associations, he further claimed that tourism has proved beneficial for the conservation of some SNS. Tourism has helped to reaffirm local cultural beliefs and traditions as in the case of the Tafi Atome Monkey Sanctuary in Ghana (Ormsby and Edelman, 2010) (Chapter 1). As such, ecotourism in SNS may support conservation efforts while reinforcing or reviving traditional cultural associations, because it contributes to creating awareness and educating outsiders on the importance of SNS and their biocultural values (Ormsby and Edelman, 2010). Sacred natural sites have also contributed to the conservation of natural resources as they offer economic incentives (Ormsby and Edelman, 2010). Similar to the Tafi Atome Monkey Sanctuary, the Funjwa forest as a heritage site could potentially reduce unemployment by providing alternative or supplementary means of livelihood through the creation of jobs. If locals know that the location is their source of income, they would want to preserve the area to ensure that their employment is long-term. Including SFs as part of tourist sites should not create uncertainty about the legal ownership of the site so that it does not affect the TA and does not result in the alienation of locals from the SF (Ormsby, 2013).

8.4.4. Predictions for the sacred forests of Mabasa and Mazizini

In terms of the ecological integrity of the forest, it is believed that the Funjwa forest in Mabasa is healthy, despite concerns about uncontrolled forest use, particularly by outsiders. Regulations for outsider or non-resident use were recommended to minimise endangering plant species in the forest. To preserve or strengthen the natural and spiritual attributes of the sacred site, people from surrounding villages or clans, as well as those who are not affiliated with the SFs, need to be informed about the sacred significance of SF (Kandari *et al.*, 2014). Whereas the Nhlankomo forest is believed to be able to recover because of the reduced reliance on the forest. Concerns were raised regarding heavy rains and erosion brought on by climate change, and the lack of management of the site in terms of cattle grazing and the spread of alien invasive species.

With regard to the cultural integrity of the SNS and the biocultural relationships shared with the site, both communities were concerned about the state of their cultural heritage. The concerns expressed by Allendorf *et al.* (2014), are realities in both study sites that are contributing to the biocultural degradation of these SFs due to factors such as local politics, development, disengaged youth and lack of knowledge transfer. These concerns have been highlighted by FG and scenario workshop participants concerning their predictions about their cultural heritage. Fortunately, there have been recent attempts to revive the

historical and deeper ancestral connections to these sacred spaces. This renewed interest in the SF and its history is a consequence of the revival in the Zulu culture and its traditions. Reihling (2008) also noted an “African Renaissance” in references to the use of traditional medicine, which became increasingly associated with efforts to restore traditional practices and promote TEK. The newfound interest in the Mabasa and Mazizini communities may serve to conserve the remaining biocultural associations and reinforce cultural practices that are losing their significance. For example, local communities defending their connection to the cultural landscape (Martinez-Reyes, 2012). This revival should help reintroduce cultural practices or traditions that have been lost. Despite the Zulu renaissance which has encouraged and inspired locals to return to their roots, time will tell the outcome of these predictions. It was also noted that hope for the preservation of the community’s cultural heritage is placed on measures adopted, and changes implemented by the government, particularly in reference to the youth.

8.5. Conclusion

Although the broader set of cultural values and traditions of the biocultural communities of Mabasa and Mazizini are being increasingly compromised by the multiple drivers of change, their desired futures reveal values that are tied to preserving the cultural and ecological significance of their SFs. Their desired headlines highlight the complex interrelationships that exist between culture, biodiversity and conservation of the SFs. The desired futures as motivation for the conservation of the SFs affirm that SFs are not only cultural assets but are of great ecological importance. The SFs contribute to the cultural identity and cohesion of these communities as tangible connections to the community’s spiritual and ancestral past. The desired futures indicate that SFs play a role in fostering responsibility for conservation efforts, of which traditional leadership is key for their conservation. The preservation of the SFs is deeply intertwined with the efficacy of TAs’ management, the influence of religious shifts, the role of the government and the evolving role of youth in upholding cultural practices. Both communities envisioned futures where cultural and spiritual values are upheld by strong leadership from the TA and royal family as the royal leadership is inextricably linked to cultural aspects of the SFs. However, leadership struggles, marked by a declining adherence to traditional practices and the erosion of cultural values, have catalysed forest degradation and cultural disintegration, and have compromised the spiritual potency of the SFs. Whilst in Mazizini, effective management also needs to preserve secrecy where necessary while addressing calls for greater transparency, i.e., promoting knowledge transfer and engagement.

The erosion of spiritual values undermines spiritual reverence and traditional protective practices, which has contributed to over-exploitation due to unregulated resource use. Additionally, the weakening of spiritual ties reduces intergenerational knowledge transfer, further endangering SF conservation. The influence of Eurocentric and individualistic worldviews also poses a challenge to the Zulu worldview, *ubuntu*, that influences social cohesion as a philosophy of life. This challenge is particularly significant amongst the youth, who are considered as agents of cultural change. Youth apathy across both sites,

influenced by conflicting worldviews and external influences, poses a great challenge to cultural preservation. Addressing these challenges requires a multifaceted approach. Both communities appear not to have responded to the changes in beliefs and governance but have suggested ways in which to revitalise traditional ceremonies, create knowledge-sharing initiatives and engage youth in cultural practices. These measures aim to counterbalance the external influences by strengthening local governance and re-engaging community members, especially youth. In terms of addressing the ecological challenges the SFs are facing, only the Mazizini community has been engaged in steps to mitigate these.

Various strategies, policies and education programmes were also suggested for the protection of the SF for effective knowledge dissemination, promoting of traditional practices and community participation through stakeholder engagement, collaboration for stronger traditional leadership and supportive policies for the preservation of cultural practices. First, to highlight the royal family's leadership role, stakeholder engagement needs to be legitimised by the TA and royal family i.e., the TA and royal family to lead conservation efforts, ensuring their leadership is recognized and legitimized by all stakeholders. Also, implementing community awareness initiatives is crucial for conscientizing the community and maintaining the TA's and royal family's roles as stewards, because the beliefs underpin traditional governance and affect sustainable use. These initiatives should encourage youth participation in cultural practices and conservation activities. Second, in Mazizini, despite confidence in the royal family's ability to preserve the heritage, transparency was raised to avoid the perpetuation of ignorance amongst community members. However, to share knowledge about amaZizi's cultural values and traditions, including those enshrouded by secrecy, measures were proposed to prevent the infringement of the sacred site and aspects of secrecy. However, the effectiveness of these efforts remains uncertain. Third, the integration of cultural and environmental education to enhance community understanding of the SFs' significance, is essential for bridging the gaps and fostering community stewardship. Additionally, the development of the school curricula as well as community engagement programmes were shared to encourage knowledge transfer. Fourth, the future of these communities hinges on inclusive and adaptive management strategies that are sustainable and culturally sensitive conservation practices. Collaborative efforts or policies such as co-management involving various stakeholders are necessary for sustainable and culturally sensitive conservation practices. Additionally, the encouragement of stakeholder engagement, and government support or interventions that respect traditional governance and customary laws. While these strategies emphasise community stewardship and the importance of TA, it is also important to recognise that traditional systems are not without flaws. Oral histories and FG participant accounts highlight that they can be exclusionary, especially towards women, and power imbalances may undermine inclusive participation. Recognising both the strengths and limitations of these systems is essential to fostering governance models that protect cultural heritage while upholding the rights and dignity of all community members. Fostering collaborations between *amaKhosi* to ascertain a unified voice was also deemed imperative in creating documented resolutions and in preventing the government

from overreaching through the constitution. Fifth, the need for strengthening laws and the need for potential policies and plans concur with the recognition and support of the legal formalisation of SNS. Adaptive and inclusive policies and legal formalisation of SFs are needed to ensure a sustainable future that protects the biocultural values of the SFs and promotes local economic development.

This chapter reveals that the community recognises the interdependence and intricate connections between culture and nature through a comprehensive understanding of the issues and measures they share. Hence, the participants understand their SFs through a biocultural lens. The potential solutions of how cultural practices and environmental conservation can be synergistically managed highlight the importance of community stewardship, traditional authority, and youth engagement. Collaborations, engagements and institutionalisation of policy can further current organisational influence and local initiatives in these communities. The chapter highlights the point shared by Khan (2019), concerning traditional beliefs, indigenous knowledge, and science are complementary and mutually enriching and should be considered when formulating effective local, national, and global conservation strategies. Finally, communities' aspirations and hopes for the future emphasise the importance of the renewed interest in their cultural heritage and environmental stewardship. Thus, the 'Zulu' renaissance in reference to cultural traditions, alongside proactive environmental stewardship, can forge a sustainable path that honours the past whilst embracing the future.

Chapter 9: Final synthesis

9.1. Introduction

Four objectives were set out for this interdisciplinary study, framed within the biocultural diversity (BCD) approach, to assess how the SFs in Mabasa and Mazizini in KwaZulu-Natal contributes to biological and biocultural conservation. Sacred forests in Mabasa and Mazizini have long served as both spiritual landscapes and ecological refugia, governed through customary rules, ancestral reverence, and cultural taboos. This study examined how these forests function as conservation spaces, how governance and cultural meanings have shifted across historical periods, and how socio-political and economic changes are reshaping their role in biodiversity protection. While traditional governance systems have weakened under external pressures, ranging from colonial disruptions to modern economic shifts, these forests remain ecologically intact, raising important questions about the evolving role of sacredness in conservation.

9.1.1. Review of objectives

9.1.1.1. Objective 1 (Part A): Explore the historical context of the two communities and their relationships with the sacred forests to better understand the biocultural associations

Chapter 3 provides the cultural historical context about the sacred significance of the two forests examined in this study, which are attributed to the *amaKhosi* burials within the forests. Soury (2007) and Sullivan *et al.* (2023) pointed out that SFs hold religious and spiritual significance for local

communities as they are connected to a place or institution of worship, contain burial sites or representations of local gods, or are multifunctional. In Mabasa, the sacred status of the Funjwa forest is linked to local historical events that led to *Nkosi* Funjwa's integration into the community and his eventual leadership as *Nkosi*. Therefore, the SF was established due to its cultural significance associated with *Nkosi* Funjwa, even though other royal family members are buried there. Consequently, the sacred area of the Funjwa forest has areas that are considered more sacred such as *Nkosi* Funjwa's burial site. Like Mabasa, the first SF in the Royal Natal National Park (RNNP) in Mazizini is strongly linked to the area's founding *Nkosi*, referred to as Kwa-Magangane, even though subsequent generations of his lineage have been buried there. Whilst, the *Hlathi lama Khosi*, focused on in this study, is linked to a lineage of *amaKhosi* as denoted by its name. Due to restrictions on accessing the *Hlathi lama Khosi*, the culturally significant Nhlankomo forest was considered as an alternative, with permission from the TA (Section 2.2.1.3)

Like the sacred significance of many other SFs as illustrated by Wild *et al.* (2010), the SFs in the Mabasa and Mazizini are embedded in a local belief system. In the Zulu belief system, ancestors are central to traditional religion, especially of the *amaKhosi*. Hence, forests where *amaKhosi* are buried become sacred spaces within the local community and are meant to be preserved. Although both communities share the same belief system, the local cultural and historical circumstances that led to the establishment of their SFs differ. The historical and cultural difference underscores the complex interrelations between the socio-political and cultural histories within the landscapes that shape the spiritual importance of SFs. Over time, these factors have influenced the significance of individual *amaKhosi*, how they are honoured and why certain forests became sacred in their memory. It is also important to consider and understand the historical contexts, as past socio-political and cultural dynamics continue to shape present-day cultural landscapes. It was discovered that the local political disruptions, such as the conflicts between clans that occurred in KwaZulu-Natal, led to Funjwa's arrival in Mabasa, which later resulted in him assuming the throne. These broader political dynamics played a significant role within the Mabasa community, contributing to internal royal family politics and in the establishment of the sacred Emzinyeni forest. In terms of the governance of these sites, spiritual governance (Section 3.3.2.2) is considered one of the key forms of governance in both SFs, which offers a unique form of protection to these sites, influencing access, use, and conservation. Protection from ancestors is believed to prevent "unauthorised" entry and ensures respectful and judicious use where permitted. Spiritual governance manifests differently in each community. In Mabasa, spiritual entities are believed to influence user behaviour, fostering an inherent conservation ethic, i.e., guiding conduct in the forest through the presence of ancestral spirits, religious beliefs and practice that motivates its protection. In Mazizini, spirits are believed to intimidate and punish those who violate restrictions. Traditional authorities and leading custodians maintain the sacred significance of these forests through religious practices. These ensure the spiritual well-being of the forests and keeping the spirits of the ancestors "alive". Soury (2007) also reported that for SFs to maintain their spiritual functions and potency, the rules that limit

access to and prevents desecration of the SFs are essential. As a result, the leading custodians are, therefore, responsible for developing and implementing rules of the land, whilst in other contexts, entire communities act as stewards of SFs (Sullivan *et al.*, 2023). This study found significant differences in governance across sites. The *Hlathi lama Khosi* is reserved exclusively for certain royal family members which is used for burials and other cultural purposes. In contrast, the sacred area of the Funjwa forest, while discouraged from use, requires permission from the TA if access is needed.

Sacred forests are deeply rooted in the long history of human-nature interactions in accordance with the biocultural diversity approach of coevolution. According to Sullivan *et al.* (2023), such interactions of indigenous people and local communities (IPLC) with SFs have rarely undermined their biodiversity. The BCD approach also emphasises that the geography of natural features are often embedded within cultural traditions, beliefs and spiritual reverence (Mathez-Stiefel *et al.*, 2007). The geographical background of Mabasa and Mazizini, as discussed in Chapter 2, highlights the cultural and spiritual significance of key natural features such as mountains and waterfalls. Differences in the physical landscapes of these regions have influenced the establishment of their sacred forests, with these features serving as focal points for cultural identity and spiritual reverence. This integration of natural features extends to the practice of customary secrecy (developed and defined in Section 3.4.3), which is not only shaped by the ancestral significance and cultural values, but also influenced by the physical landscape and forest availability. Additionally, customary secrecy has contributed to the sites protection (Section 3.3.2.2).

9.1.1.2. Objective 1 (Part B): Explore the historical context of the two communities and their relationships with the sacred forests to better understand the biocultural disassociations or fragmentations

Local communities give importance to their SFs which contributes to their conservation through generations because the “cultural value of the forest can outlast one human generation” (Sullivan *et al.*, 2023). However, in this study it became apparent that the biocultural associations with the SFs have been compromised. In this way, the cultural and spiritual context described in Chapter 3 offers a greater understanding of the historical disruptions concerning governance gaps and challenges, and cultural shifts demonstrated in Chapter 4. Additionally, through the diverse methods employed such as the FG discussions, key informant interviews and oral histories, discrepancies in local understandings surrounding governance and the forms of traditional laws and regulations became apparent across both study sites. For example, in Mazizini there are inconsistencies in narratives concerning use of the Ndlankomo forest (Section 3.4.3). Likewise, different narratives of the rules of access and use in the sacred area of the Funjwa forest were found. Concessions in use and access of these SFs, particularly in Mabasa and in relation to the Nhlankomo forest in Mazizini, were also revealed. For example, leniency was given to certain members of the community with special status and significance like traditional healers and royal family members, as well as concessions given for certain types of use, e.g., *muthi* harvest and other cultural uses.

The discrepancies in traditional governance become clearer as the political and socio-cultural historical contexts across the three periods (colonial, apartheid and democratic) were investigated. The three periods revealed profound transformations and a dynamic interplay between community governance, leadership structures, changes in traditional beliefs and cultural practices in these communities. The socio-political changes of the colonial government undermined the traditional ways of life and indigenous institutions. ‘Agents’ of colonialism were identified in Mabasa and Mazizini, such as the introduction of Christianity through the missionaries, Western education and the establishment of nature reserves. These ‘agents’ were deeply intertwined with the agenda of cultural, political and territorial control of indigenous communities and promoted European norms, values and forms of governance. Some of the community members have disregarded their indigenous beliefs, values, practices and knowledge that are central to and in support of SFs. However, indigenous religions were not entirely replaced, for example, some locals who claim to be Christian still hold onto their ancestral beliefs. These cultural and religious dynamics have contributed to a shift in relational values (raised in Chapter 5 and which is addressed in the next objective) that began as early as the colonial period. Particularly in Mabasa, Western education further alienated many in these communities from their ways of living, their cultural identity and beliefs, and traditional custodianship. The indoctrination of Western ideologies through the colonial education system was not as apparent in Mazizini, but the establishment of the Royal Natal National Park was noted by participants to have maintained imperialism in Mazizini, i.e., the dispossession of their land that affected their cultural ties to the land. Nevertheless, the amaZizi demonstrated cultural resilience by adapting and continuing their traditional practices (Section 4.4.2).

The continuation of imperialism through the apartheid system, although centered around racial segregation, undermined the cultural integrity of IPLCs. On the one hand, policies such as the Betterment scheme disrupted cultural ties to the Nhlangkomo sacred mountain (Section 4.3.3.2), illustrating how broader government policies and practices impacted traditional Zulu customs and cultural practices. As such, the management of the culturally significant Nhlangkomo forest was also affected. Certain Acts further undermined TAs and disrupted leadership succession. In Mabasa, *Nkosi Bhukwane*, who considered himself as a traditionalist, failed in his efforts to revert to the traditional governance system. Whilst his efforts illustrate resistance to national government interference, it also reflected how his leadership role was undermined. Whilst in Mazizini the effects of leadership succession were evident (Section 4.3.3.1) which illustrated the extent of the government’s influence in traditional affairs. The apartheid government disrupted TA governance that affected traditional custodianship and contributed to cultural and spiritual disconnection from SFs. As the years progressed the extent of Western influence became increasingly evident such as the attempts made to establish the nature reserve surrounding the Funjwa forest. The establishment of the game reserve in Mabasa served as an attempt to preserve the sacred site but replaced traditional custodianship with Western conservation practices. This shift is believed to have disrupted the authority of traditional custodians, greatly contributing to ambiguities in the management systems. In Mazizini, the discrepancies in traditional

governance were also a by-product of the apartheid government maintaining the restrictions over access to the reserve that disrupted amaZizi traditional laws and the locals' ability to obtain resources for their needs and livelihoods. Concerning the democratic period during which the national government worked towards addressing the historical social injustices, it appears to have unintentionally undermined the sovereignty of TAs in the public domain. These unintended consequences aligns with Ainslie and Kepe's (2016) observation that traditional leaders faced in postcolonial Africa regarding their official position, responsibilities and constitutional roles within emerging African democracies.

Beyond Western influences, historical events within these indigenous communities have contributed to cultural shifts. For example, local political disruptions in the broader black history such as the Ndwandwe-Zulu war, indirectly led to establishment of the Emzinyeni SF in Mabasa. The establishment of the Emzinyeni forest further reduced the laws and restrictions surrounding the use and access to the Funjwa forest. This, in turn, affected locals' awareness of the significance of the sacred Funjwa forest. Governance ambiguities, including the lack of knowledge about the traditional forms of governance and cultural practices have also been affected by customary secrecy, as it limited broader community awareness. For example, customary secrecy has created uncertainty amongst the amaZizi about SF rituals, such as the change in burial location of the amaZizi *amaKhosi*, or whether such burial practices are presently maintained. The discrepancies in the amaZizi narratives appear to be a consequence of the community not being clearly informed as to which forest patch is the *Hlathi lama Khosi* due to customary secrecy. Even the interactions and experiences with the spirits have been undermined in some ways due to customary secrecy and myths shared. It became evident during the FG discussions amongst the youth in Mabasa that some locals remain ignorant about the deeper connections to the SF and the meaning of supernatural encounters. Despite customary secrecy having historically protected these SFs, the myriad of external influences has made the practice of customary secrecy counterproductive to the biocultural preservation of these SFs.

9.1.1.3. Objective 2: Determine in what way local beliefs, values and uses affect the integrity and condition of the sacred forests

Objective 2 was addressed in Chapters 4, 5, and 6. Chapter 5 highlighted how sociocultural and political changes that were examined in Chapter 4 have shaped SF uses and values. Similarly, Chapter 6 revealed how socio-economic factors influenced SF use patterns. The sacredness of the forests was once intimately linked to daily life, spiritual rituals, and community cohesion, but over time, the forests have lost much of their cultural and spiritual significance. This shift in the spiritual significance of the SFs reveal a disconnection from traditional ways of relating to the environment. For instance, the lack of restricted access to the SFs highlights a deeper, cultural shift in the relationship between the community and these sacred spaces, therefore, signifying a change in relational values once shared with these forests.

Through the use of listing and ranking, FG discussions and participatory mapping, tangible and intangible benefits from the SFs were identified. Consistent with Wadley and Colfer (2004), their study revealed that SFs provide important forest products to local communities. The different uses offered by the sacred Funjwa forest and the culturally significant Nhlinkomo forest provides insight into the relationships shared and values offered by these forests. The listing and ranking reveal instrumental values (e.g., as basic needs, economic resources, livelihoods, cost-saving and security) has taken precedence over cultural uses, reflecting the erosion of traditional cultural beliefs, values and practices. These shifting values indicate that the forests are primarily valued for their extractive and economic utility over their cultural or spiritual significance that once influenced how communities perceived the SFs (Chapter 3).

Despite sociocultural and political changes weakening traditional beliefs and practices as well as adherence to customs and cultural practices related to the SFs, the focus group and oral history participants revealed that cultural values remain intact. In Mabasa, responses during the FG discussions about how the SF is valued at both the individual and community level illustrated the link between ancestral significance, spirituality and a user's intuition, which influences their behavior, guiding them to act in ways that respects its sacredness. The oral histories also revealed how the elderly participants and members of the community once shared deep connections to the forest and continue to recognise its cultural relevance, rooted in a strong cultural foundation of values and intergenerational knowledge. Older participants emphasised sacred and intrinsic values (Section 5.4.2.2), while younger FG participants showed less awareness of the SF significance due to fragmented knowledge transmission. In contrast, none of the amaZizi elders shared a personal relationship with the sacred *Hlathi lama Khosi*, because only the royal family members maintained direct ties. With regard to the Nhlinkomo forest, FG discussions revealed the relationships shared at the individual level were less diverse than in Mabasa. However, ancestral spiritual significance remained a key influence shaping the relationships shared with the forest, reinforcing efforts to protect the forest and preserve these connections.

The participatory mapping also revealed that cultural sites were primarily associated with the sacred area of the Funjwa forest and in the more remote areas within the Nhlinkomo forest, including the spiritual significance of certain geographic features (like the waterfall). In this way, the participatory mapping exercise helped to understand the value attached to the SF. The participatory mapping also revealed the community's inability to locate *amaKhosi* burial sites in the sacred Funjwa forest, which may reflect either a decline in transmitted knowledge or adherence to customary secrecy and reverence for ancestral traditions. Furthermore, the participatory mapping revealed use in the forests which reflects the reduced potency of the ancestral presence in guarding the forests, particularly in Mabasa, and the TA governance. Evidence of forest use in the sacred area of the Funjwa forest coincides with the FG participants and elderly participants' claims that there is no law prohibiting use in the sacred area. Forest use in the SF contrasts with Wadley and Colfer (2004), who argue that SFs serve as a mechanism for

biocultural conservation, with religious values and practices playing a critical role in maintaining ecological sustainability due to limited use.

Although triangulation of these methods provides a comprehensive understanding of the type of values (intrinsic, relational or instrumental) associated with the forests, the manner in which FGs were facilitated may have put into question the depth and reliability of the insights gained about these values from the participants. To really understand whether intrinsic or relational values have genuinely declined or if they are simply being overshadowed by instrumental ones in the context of pressing economic needs, care needs to be taken given the inherent biases of individual data collection methods. The FG discussions facilitated an interactive session of collective reflection amongst the participants, the study's purpose and the question posed to them may have influenced their responses. Therefore, the manner in which the FG discussion was facilitated may have prompted greater links to spiritual connections and cultural traditions. Like the FG discussion, the oral histories revealed stronger cultural links (Section 5.3.3). Focus group discussions and oral histories may have highlighted cultural or spiritual values because they want to be seen as socially or morally desirable, even if, in practice, economic priorities dominate local actions. This may explain the contrasting findings from the ranking exercises, which is more pragmatic in nature and less influenced by social expectations, and instead reflects current priorities. Due to its pragmatism, the ranking exercise lacked capturing the emotional or spiritual depth revealed in oral histories or FG discussions, and the method may have oversimplified the depth of values by reducing them to items on a list. The triangulation of methods across the study aided interpretation of these differences. For example, the findings from the listing and ranking were supported by the trend analysis concerning forest use and dependence (Section 6.4.1.3). Likewise, the values derived from the FG discussions and oral histories complemented and enhanced the findings from participatory mapping and time-series change detection analysis.

Chapter 6 showed that despite the institutional disintegration of the TAs caused by the different national governments, there were socio-economic improvements that were introduced by the democratic government, such as RDP housing, increased access to electricity, shops, healthcare, etc. (Section 6.3.2). The economic shifts, development, service delivery, influences of modernisation and government poverty alleviation projects have reduced the local dependence on these forests for everyday needs. These changes contributed to the shift in the direct economic dependence on SFs, which also influenced the biocultural relationships once shared with the forest. The reduced reliance on both the sacred Funjwa forest and the Nhlankomo forest for daily needs has had negative implications for the cultural heritage of the community because the changes in forest use has altered biocultural relations with the forests. The listing and ranking of forest use benefits and consequent values attributed to these benefits concurs with this shifts in forest use. The diminished cultural values have also resulted in less resistance to the introduction of modern practices and ways of living, which reinforces the shift toward commodified forest uses. The findings project a nuanced picture of both communities at a crossroads of tradition and modernity.

The present reliance on the forest concurs with Soury (2007), in which forest dependence is influenced by the level of poverty. The complex interplay between cultural and spiritual values, and socioeconomic realities revealed that while cultural values exist, the pressures of poverty or livelihoods often influence how locals prioritised forest use. The erosion of cultural beliefs (Chapter 4) weakens traditional forest values, while socio-economic changes (Chapter 6) introduce new priorities that reshaped how forests are used and valued. Understanding these shifts in values mirrors the “people with nature” approach as explained by Reyers and Bennett (2025), given that these changes are not isolated; but rather they overlap and interact with one another. For example, the increased use in *muthi* revealed that there are changing attitudes in the local communities concerning the preservation of the SFs. Although *muthi* has been attributed to intrinsic and relational values, it is primarily being exploited for economic gain, resulting in its instrumental value dominating and overshadowing its cultural and spiritual significance. The Mazizini community also demonstrated that building wood and fuelwood were valued for their economic contribution. Furthermore, increasing tourism opportunities in Mazizini greatly influenced the ranking of certain benefits from the Nhlankomo forest, such as crafting wood.

Infrequent or absent rituals and the decline in ancestral beliefs were also evident in the listing and ranking of ES, where spiritual practices and the role of ancestors were rarely prioritised. Notably, the significance of these SFs for *amaKhosi* burials was not considered within the listing and ranking, except by one participant in Mabasa. Whilst there were some cultural and spiritual benefits listed for the Nhlankomo forest, these were ranked lower than instrumental benefits like livelihoods and health, underscoring a shift in value systems (Section 5.3.2.2). Apart from the beliefs or suspicion that *amaKhosi* are no longer buried in the SFs in Mabasa and Mazizini, other ceremonies and rituals are no longer carried out in the SFs. The extent of the effects of Christianity has been greater in Mabasa given the long and deep history of the missionary church and its role in the community, to the extent that it had a great influence on the royal family. The adoption of Christianity by members of the royal family has jeopardised the custodianship of the biocultural landscape. In particular, the current *Nkosi* of Mabasa, who identifies as Christian, is no longer upholding the rituals and ceremonies that are meant to be performed in the forest with the community, which disrupts the continuity of cultural stewardship. As the leading custodian of the belief system, the *Nkosi* plays a pivotal role in ensuring the community remains connected to its ancestral beliefs and practices, ensuring the long-term preservation of the SF. The neglect of traditional practices upheld by the royal family has weakened the spiritual governance, which serve to enforce traditional rules and taboos around SF use. Changes in spiritual governance and the lack of fear of traditional punishments have contributed to changes in forest use. The lack of fear of sanctions or punishments illustrates the abandonment of local beliefs. These changes reflect a decline in the cultural integrity of the SFs, as the ancestral connections have weakened the sanctity of SFs, diminishing reverence for the sacred guardians.

The growing demand for and exploitation of *muthi* coincides with the reduced reverence of the TA and the *amaKhosi*. The changes in the TAs' roles, including diminished respect for the *amaKhosi*, have weakened the enforcement of taboos and cultural traditions creating the conditions for the shift in use. Furthermore, in Mabasa, the absence of laws to reprimand destructive or disrespectful use in the forests has created a sense of impunity, contributing to unsustainable practices as well as increased outsider use. The exploitative use of *muthi* highlights the tension between traditional cultural values and their protective function. The commercialisation and exploitation of *muthi* underscores the complexity of two systems operating in parallel, i.e., one rooted in spiritual and cultural reverence, and the other driven by economic interests. As such, the growing demand for *muthi* was a result of two contrasting processes. First, the rising demand for *muthi* from urban areas has contributed to “fake” traditional healers and increased outsider use who lack the spiritual connection with the land and respect for generational teachings. Fake” traditional healers and increased outsider use has contributed to unsustainable harvesting and further highlights the breakdown in traditional governance or management mechanisms. Second, the growing demand for *muthi* indicates a renewed recognition of its intrinsic and cultural significance, particularly the cultural beliefs tied to ancestral connections and healing practices. This shift reflects the growing awareness amongst locals that Western medicines are less effective than traditional medicines, which was a similar finding reported by Mbongwa *et al.* (2021). The renewed recognition of the significance of *muthi* suggests a complex interplay between economic exploitation and cultural appreciation. Williams *et al.* (2000: 310) also found that increased commercialisation of *muthi* in South Africa is due to “acceptability of traditional medicine over western medicine”, including other factors such as affordability, accessibility, etc.

The increased *muthi* use positively correlated to the increased reliance on the forest, whilst the reduced reliance on the forest to meet the locals' daily needs coincided with their increased dependence on services and support government rather than their traditional leaders. The reduced dependence on local traditional leaders has also contributed to reduced reverence that these communities once had for their TAs. Government programmes or services and human-centered development, such as RDP housing project and electrification, have further reduced their engagement with traditional leadership. As local community members grew increasingly less responsive to their leaders, this in turn, accelerated cultural disintegration. Furthermore, Western ideologies, including the concept of individualism and prioritisation of human rights, have reduced community cohesion and collective responsibility for cultural preservation. ”. Additionally, the adoption of modernisation and shift in use have further deepened the decline in community cohesion (Section 6.3.4). For example, whilst modern consumer preferences reduced the dependency on the forests and anthropogenic influence, the increased dependency on store-bought goods has eroded traditional skills (e.g., crafting, thatching), affected communal living and social cohesion, and, to some degree, contributed to a moral decay. Likewise, adoption of fencing disrupted communal values like *ubuntu*, prioritising individual property over collective welfare. This erosion of shared values affects biocultural relationships, as Pretty *et al.* (2009),

highlights that strong shared values of the community support their compliance with social and environmental regulations. The decline in subsistence farming and community gardens also have broader cultural implications such as reduced knowledge transmission and communal living caused by the dietary shifts. Dietary changes resulted in (1) ancestral links being undermined because of reduced storytelling during food preparation activities, affecting intergenerational knowledge transfer, and (2) cultural disconnection from land-based practices and skills. This shift aligns with the growing dependence on store-bought foods, whilst cultivated and wild foods are increasingly neglected, leading to a decline in land-based livelihoods and traditional knowledge (Bharucha and Pretty, 2010).

The FG and oral history participants revealed that forest use changes have greatly impacted the forests at the species level due to the increase in unsustainable harvesting of *muthi*. The unsustainable harvesting of *muthi* has led to certain species becoming increasingly difficult to find. Some species have been claimed to be endangered, which are also listed on the Red List, because they are targeted for specific myths or rituals. Overharvesting suggests that its sacred status, particularly for the Funjwa forest, has not translated into effective biological conservation, and that in contrast, cultural practices tied to folk medicine may contribute to species extinction. Green *et al.* (2022: 2) found that the trade and use of *muthi* is believed to be rapidly expanding in South Africa and that traditional healers outnumber Western doctors as “an estimated 60–80% of its citizens consult traditional healers for medical concerns”. Despite improved service delivery, including greater access to Western medicines, the use of *muthi* has increased due to socio-economic factors that make them more affordable and accessible (Mbongwa *et al.*, 2021). Based on this, SFs can undermine biological processes by creating a false perception of their protection, which highlights the romanticisation of these spaces as inherently safeguarded. Nonetheless, the local communities demonstrate rich ethnobotanical knowledge, evident in their understanding of species locations at specific altitudes and their understanding of certain species for cultural uses. This ethnobotanical knowledge is a vital resource for sustainable forest management, but the combination of over-exploitation and weak governance is arguably threatening the preservation of these forests. The trend analysis illustrated contradictory results for Mabasa, which indicated that plant species composition has increased, suggesting some degree of localised ecological resilience or effective conservation measures.

9.1.1.4. Objective 3: Determine the current ecological condition and integrity of the sacred forests and if it has changed over the recent past. If yes, how?

Although the loss in cultural beliefs is believed to jeopardise the significance of the SFs (Gavin *et al.*, 2015; Bennett and Reyers, 2022), which was a shared concern raised by the elderly and FG participants, the change detection and ecological survey findings suggest otherwise. Understanding forest use changes (Chapter 6), made the interpretation of the forest condition via the change detection analysis and ecological field surveys easier. The ecological field surveys revealed that the forests are biologically diverse given their high Shannon-Weiner values. However, due to there being no significant differences

of species diversity between the SFs and adjacent counterfactual sites, this serves as an indication of the similarity in forest use. The evidence of use in the sacred Funjwa forest and the Nhlankomo forest highlights the breakdown in traditional governance of the sites as well as the disregard for ancestral beliefs and values. It also alludes to the shift in forest dependence for economic gains over traditional and spiritual uses.

Despite, the increased dependence on the forest for *muthi*, the forests have stable populations that are able to regenerate and expand. Despite cultural shifts and anthropogenic pressures, the change detection analysis from 2010 to 2022 also indicate that the forests have expanded, exhibit increasing connectivity (fewer canopy gaps), and indicate no evidence of land use conversion. The intactness of both forests over the years, specifically in 2022/23 concurs with forest stability as per the plant population inverse J-shaped graphs. Population stability further suggests sustainable harvesting practices that may have replaced more intensive activities such as pole harvesting. For example, the transition in architecture and the introduction of electricity reduced timber harvesting, which has contributed to the degradation of various other SFs, such as the SFs in Muzarabani, Zimbabwe (Soury, 2007), and in Inyi (Ejikeme et al., 2022). In contrast to Buxton *et al.* (2022), who identified land conversion as one of the major causes for SF loss, this study revealed forest expansion. The participatory mapping also illustrated no evidence of exploitative use in the Funjwa and Nhlankomo forests and revealed a lack of any major changes to the structural condition of the forest. Understanding trends in the changing forest coverage and the key drivers of forest use change supports forest conservation strategic planning. Similarly, Negassa *et al.* (2020: 1) shared that “detecting land use change over time has become increasingly important consideration for environmental management”. Through the participatory mapping it was interesting to see the overlaps identified between ecologically significant areas in the forests and the spiritually significant sites. However, these overlaps may be coincidental. For instance, the species-richness areas may be attributed to limited human access due to steep terrain or remote locations.

In Mazizini, the significant difference in harvesting between the Nhlankomo forest and the reserve forest illustrates the socio-cultural implications raised in Chapter 4 and changes in the way the SFs are valued in Chapter 5. The Nhlankomo forest also exhibits signs of selective harvesting, targeting larger trees. In contrast, the reserve forest illustrated no evidence of harvesting. The wildlife presence in the reserve forest was also significantly higher. These differences are likely due to stronger management in the reserve forest underscoring the role of effective governance in biodiversity conservation. Despite this, the Nhlankomo forest illustrates greater intactness than the reserve forest as per the change detection analysis. The SF in Mabasa also revealed insignificant differences between the biological indicators and population dynamics, probably due to the deterioration in governance and management systems of the forest given the presence of harvesting in the sacred area of the Funjwa forest. The insignificant differences suggest that sacred status alone is not sufficient to safeguard against human impacts. This is contrary to other studies that attribute higher tree density in SFs to strong religious beliefs and

community management (e.g., Alohou *et al.*, 2017; Rath *et al.*, 2020). Instead, this study resonates with Ballullaya *et al.* (2019) that taboos or customs and spiritual significance alone are not sufficient in successfully conserving the SFs. As in the case of Mazizini, protected area governance seems to be stronger than SF protection in dealing with contemporary environmental pressures (Rath *et al.*, 2020). Whilst this study highlights that sacredness has not translated into stronger protection against human impacts, the forests have retained significant ecological potential, including population stability, regeneration capacity, and species diversity. Additionally, the SFs show signs of resilience through expanding cover and reduced fragmentation, but given the cultural shifts and unsustainable use, the role of SFs as biodiversity refugia can be enhanced by reducing human interference and strengthening traditional and formal conservation laws.

Harvesting in the sacred Funjwa forest and the Nhlankomo forest, driven by the demand for medicinal plants (Chapter 6), coincides with the romanticisation of these sites where they are believed to contain “powerful *muthi*” that is harvested (Section 6.3.4). Therefore, strengthening traditional laws, cultural customs, and local governance systems is crucial for leveraging the conservation potential of these forests. Conservation efforts must integrate cultural and ecological priorities such as sustainable harvesting practices, promoted alongside efforts to control invasive species, revitalise traditional governance, and formal protections on forest access in ecologically significant areas. Without such measures, the ecological and cultural integrity of these forests remain at risk, particularly as cultural values and governance systems continue to erode. By leveraging or integrating local knowledge and combining traditional and scientific conservation strategies could foster a balanced approach, these forests can serve as vital refugia for biodiversity while supporting cultural practices sustainably.

9.1.1.5. Objective 4: Appraise how sacred forests can be best protected and managed

In addition to the erosion of traditional religious beliefs that have weakened and compromised the preservation of sacred groves (Mahaseth *et al.*, 2023), the lack of the transfer of traditions and specific methods for transferring knowledge has affected the preservation of customs in both communities. Participants shared various measures to address problems surrounding the lack of awareness and knowledge, including awareness campaigns, education programmes, ceremonies and inclusive practices that emphasise the ecological and spiritual benefits of such forests. These potential solutions are centered around revitalising cultural transmissions to help rebuild the spiritual and cultural significance of SFs. Cultural centers, heritage sites and information centers were also noted to create environments for discussions between the leaders and the community to address the knowledge gaps and increase the community's conscientiousness. Mahaseth *et al.* (2023) emphasised the need for educational workshops to help guide the community and strengthen conservation activities. Participants also shared the need for a change in the schooling curriculum to aid in the sustainable transfer of TEK from one generation to another. The growing concern among the locals, especially amongst the elderly, about abandonment of their traditions in the near future has contributed to the youth being prioritised. Kandari *et al.* (2014)

shared similar findings concerning customs having been outgrown because of the youth's lack of knowledge of their local history or traditions. The lack of the youth's involvement and non-participation in traditional ceremonies is a clear indication of their disconnection from their cultural heritage.

Apart from the elderly participants having limited means of passing down knowledge, the national constitution has contributed to undermining knowledge sharing as well as mutual respect. These factors have particularly impacted the youth who have become less inclined to understand the importance of their heritage and why it should be preserved. In terms of the implications of the national constitution on knowledge sharing, Mujuzi (2020) also found that in Uganda the implementation of government policies and laws is believed to hinder the "culture from moving forward". Whilst the impacts of the national constitution on mutual respect is believed to be a consequence of children favouring their constitutional rights over customary laws and practices. The importance given to constitutional rights in South Africa is because individual rights is foreign to customary traditions because of the emphasis placed on duty rather than rights (Moore and Himonga, 2018). Therefore, the various forms of knowledge transfer listed (Section 8.4.2.2) are believed to help overcome the challenges of the national constitution that have fueled the gap between the youth and the elderly, and to reconcile their conflicting worldviews.

The abandonment of upholding traditional practices associated with a sacred site inevitably impedes the traditional governance of the forest. Maintaining the cultural significance and the spiritual potency of SFs are believed to indirectly instill community awareness about the importance of the site and reinforce cultural values that contribute to a site's conservation. Likewise, adherence to the practices that maintain the spiritual potency of the sacred site serves to protect the site against unsustainable use and minimises the disregard of forest customs. The significance and value of SFs upheld by community members becomes possible if they are knowledgeable about the sacred or cultural significance of the site. Likewise, Pretty *et al.* (2009) found that the preservation of traditional practices leads to the preservation of cultural values, ideologies and traditional forms of governance.

Customary laws set by the TAs are not formally written down but are passed down verbally. Undocumented histories jeopardise the adherence to laws that protect SFs, and compromises them from being formally recognised or owned. Sinthumule (2022) shared that increased recognition and understanding by the government of IPLCs will help enable SFs gain legal recognition for its custodians, which is not yet the case for SFs in SA. Whilst, traditional laws and rules are formally recognised and have legal backing, SFs of these indigenous communities are not formally recognised. In Mabasa, it is hoped to proclaim the SF as a heritage site. According to Ormsby *et al.* (2010) SFs as heritage sites appear to be a better option than being proclaimed as protected areas as it avoids removing the local community from management control and alienating them from their sacred sites. Sacred forests as heritage sites also minimises threats, including those caused by tourists, and helps to address cultural changes that have undermined religious forests and ancestral traditional forms of governance as protection regimes. Agbaeze *et al.* (2013) argued that ecotourism destinations may help save or reinforce

what has been altered or discouraged or may help with the re-emergence of what has already been lost. Given that the ranked lists illustrated economic importance, these sites if “owned” by locals offers economic incentives if locals know that the location is their source of income. Domestic tourism opportunities also offer the opportunity for residents to fully appreciate their own culture and environmental heritage and to participate in recreational activities. Likewise, Ormsby and Edelman (2010) shared that SNS as ecotourism may support conservation efforts and may serve to reinforce or revive traditional cultural associations by creating awareness and educating outsiders on the importance of SNS and their biocultural values.

Efforts to document history for the transfer of knowledge and to preserve the heritage of SFs were emphasised and said to require the involvement of different stakeholders such as the government and other institutions for development of an effective conservation strategy. For such engagements to be successful, the integration of knowledge or disciplines requires an understanding of traditional beliefs, values and uses. Participants outlined various criteria to be met to ensure a conducive relationship between the government and the TA (Section 8.4.2.4) to ensure that government actions and policies align with cultural values. Collaborations between *amaKhosi* were considered the first step towards greater progress in avoiding ‘political interference’ by the government. However, the continuation of the practice of customary secrecy may inhibit SFs from being formally recognised or owned. Taboos and cultural practices are complex and often not well understood by outside observers, particularly researchers and policymakers, making it important to consider the cultural and spiritual significance of these places. Likewise, Mekonnen *et al.* (2022) and Mahaseth *et al.* (2023) opined that collaborative efforts between local communities and government representatives working to legally protect SFs will help address the disjuncture between sacred areas and local stakeholders. Addressing this gap can be through the devolution of power, through a bottom-up approach, and this can be increasingly viable if good relationships are fostered between and amongst the TAs themselves. Greater inclusivity of indigenous voices is pivotal or necessary during the creation of laws and policies to avoid or minimise unforeseen consequences of government involvement and any impacts on local traditions and the culture. Additionally, greater inclusivity of the TA will change the perception that government involvement in the community is considered as interference or viewed as meddling given the reduced respect for TAs in the Mabasa and Mazizini communities.

Fortunately, newfound interest may serve to conserve the latent biocultural associations or reinforce cultural practices that are losing significance. Despite the claims made by the FG participants and elderly about the “Zulu renaissance” believed to encourage and inspire some locals to return to their roots, they shared that time will tell the outcome of these dynamics. Reihling (2008) also discussed the “African Renaissance”, although primarily in references to traditional medicine, as an effort to restore traditional practices and promote the renewal of local knowledge. Nevertheless, this revitalisation aligns with reinforcing the local cultural heritage. There is a need for governmental changes and considerations that are informed by and support grassroots initiatives, strengthening the biocultural system from the

community level upwards. Although the Mabasa community does not reflect much resilience, the continued existence of the Funjwa forest is a reflection of resilience of biocultural relations. The belief held onto by members of the royal family is that the sacredness of the Funjwa forest should remain unaffected, regardless of external pressures or influences.

In terms of the more environmental concerns, the Mazizini community has proven capable of addressing environmental challenges through local community organisations that have been initiated with the help of external organisations and the government. Measures like fencing, forest guards and the use of permits were suggested to help the TA with their responsibilities and the challenges they face in managing their sacred sites. The more tangible measures were further believed to protect the practices of customary secrecy and the ecological condition of the SF. Regulations for outsider use were also recommended to minimise endangering plant species. In line with Kandari *et al.* (2014), the need to inform outsiders about the sacred significance of SF was highlighted as a way to strengthen the spiritual significance of the SF that serve to safeguard these forests.

Despite the reduced reliance on the forests for timber, if *muthi* use continues along the current trajectory, the management of the SFs need to be maintained to avoid compromising the preservation of the SFs. Williams *et al.* (2000) shared that the increased commercialisation and over-harvesting of *muthi* to meet the urban demand has become an environmentally destructive activity. Nevertheless, the existence of SFs serve as a living testament to the principles of stewardship and sustainability in the face of political and cultural volatility. Therefore, the persistence or degradation of SFs may be dependent on the type and severity of the threat. These sites illustrate a complex dynamic where sacredness alone may not suffice for conservation without effective enforcement of conservation practices and policies. The lack of significant difference in the ecological field surveys, which challenges the assumption that SFs inherently offer stronger conservation outcomes, cultural values and indigenous knowledge need to be incorporated into the national policy framework of conservation. Ihemezie *et al.* (2023: 2075), shared that “the current management approach to the conservation of SFs, which relies mostly on religious beliefs and traditional customs, is inadequate”. As such, Ihemezie *et al.* (2023) shared that it is essential to develop and implement differentiated management strategies because of the distinct factors of SFs that differentiate them from other protected forests threatening their existence.

9.1.2. Review of the aim

While studies of the biological significance and level of disturbance in some SFs in South Africa have been researched, there has been a lack of comparative studies specifically assessing whether sacredness contributes to biological conservation through the various ecological parameters between SFs and NSF. Consequently, this study was initiated to fill this gap by assessing and comparing the ecological condition between the SFs assumed to be undisturbed or at least protected by traditional efforts, and NSFs which are not under the protection of religious beliefs.

This study effectively connects cultural heritage and biodiversity conservation, offering vital insights into the dynamic interplay between human societies and the natural world within sacred landscapes. The findings underscore the importance of considering cultural dimensions in biodiversity conservation efforts and contribute to the global endeavor of preserving both natural and cultural heritages. This research illustrates the need to apply the BCD approach in understanding the complexities of conservation of SFs in the modern world, highlighting the need for an integrated approach in understanding and addressing the multifaceted challenges of environmental conservation. Whilst the *Hlathi lama Khosi* is still deemed important and is still restricted to the general community and despite the drivers of change over the three political periods, the practice of customary secrecy still serves to ‘conceal’ the *Hlathi lama Khosi* and is believed to be contributing to its preservation. The Nhlankomo forest, like the Funjwa forest, has seen a deterioration in its governance and its formal protection. This deterioration questions whether these sites can be considered as cultural refugia in conserving SFs and their ecosystems. More specifically, whilst use in the Nhlankomo forest implies that the cultural significance and traditional laws intended to restrict use and access are failing, the reserve forest seemed effective at conserving biodiversity and limiting human impact evidenced by better population stability, absence of harvesting and the presence of wildlife. In Mabasa, the lack of TA governance is further exacerbated by the lack of spiritual presence in governing the site, and suggests the lack of spiritual belief, which would otherwise motivate the conservation and protection of the SF. The deterioration in both traditional beliefs and cultural values that traditionally ensured sustainable use, have been caused by weakened governance, loss of ancestral beliefs, ambiguity of management systems, custodians' failure to uphold rituals in the forest, and its reduced spiritual potency. Through this study, we gain not only a deeper understanding of the complex interplay between cultural beliefs and ecological integrity but also practical insights for crafting more holistic and culturally sensitive conservation strategies. These strategies should reinforce the integration of SFs into national conservation plans and should include practical methods like enhancing community engagement, improving law enforcement against illegal harvesting, and promoting sustainable use practices. The recognition of the interdependence between cultural and biological diversity is critical for formulating effective local, national, and global conservation strategies because faith, indigenous knowledge, spirituality and science are complementary and mutually enriching in understanding human-nature relationships (Wild *et al.*, 2010; Khan, 2019). Emphasis has also been placed on the need for inclusive understanding of cultural beliefs, community values, and traditional practices in devising sustainable biodiversity conservation strategies. The BCD approach emphasises that cultural integrity needs to be intact for nature to be preserved, which ensures a greater opportunity for more effective conservation action (Gavin *et al.*, 2015).

9.1.3. Challenges, limitations and strengths in data collection and methodology

A few limitations were faced with this study. Initially, the lack of trust with the researcher stemmed largely from government restrictions imposed during the covid-19 pandemic, which limited interactions and community engagement. During the data collection, there were a few participants who were

reluctant to share certain information about the SF. Their reluctance may have been due to the lack of trust with the researcher or as a consequence of introverted characters, or due to the deterioration in certain cultural practices and beliefs evident in the findings, thereby causing participants to doubt their knowledge. Some of the participants also found it difficult to sometimes explicitly express themselves about their relationship with the SF (Cocks *et al.*, 2012). There were also cultural sensitivities which affected what was shared with the researcher by the participants even when trust was gained. Additionally, there were a few participants in Mazizini and Mabasa who were unaware about their SFs because of the practice of customary secrecy and, more specifically for the Mabasa community, the “suppressed” Ndwandwe history as discovered in Buthelezi (2012). Moreover, one of the key informants of Mabasa was not allowed to divulge certain information with the researcher about certain cultural practices and uses due to cultural protocols being a *songoma* (traditional healer).

Caution is necessary when acquiring information about “sacred significance” given the adherence to the practice of customary secrecy. Customary secrecy can affect the understanding of cultural practices amongst ordinary community members, which may have affected the depth of some narratives of the local history such as the *asebanguqa* ritual (Section 3.4.3). During data collection and analysis the interpretation of information shared with the researcher was occasionally difficult because of the language barriers. The reliability of the oral histories may have been affected by memory limitations of some elderly participants, likely because of their age, which could have compromised their recollection of events. This could have led to potential gaps or alterations in information shared. The inclusion of members of the TA and royal family was extremely challenging because of their busy schedules, but also because they were not very willing to participate.

In terms of remote sensing, most studies use a 10-year interval for forest cover change detection analysis, whilst this study made use of a 3 to 7 year interval for Mazizini and a 6 year interval for Mabasa. This was attributed to:

- The lack of availability of temporal data.

- The lack of high quality historical aerial photographs for dates between the 1980s to 1990s were not available from the service provider National Geospatial Information (NGI), a division of the Department of Agriculture, Land Reform and Rural Development. The coarse spatial resolution of older imagery that were available from NGI for the early 1990s posed challenges for analysis. These images were in black and white, which made it difficult to distinguish specific features. Additionally, the absence of reference data made the classification process complicated, making it difficult to ensure accuracy and reliability. Hence, imagery from earlier decades was not used in this study.

Additionally, triangulation of methods sometimes resulted in divergent or contradictory findings. The use of various methods and triangulation helped to develop better understanding and explanation for the

phenomenon under investigation, especially given the challenges of customary secrecy. In this way the triangulation of data offered a more comprehensive understanding of the phenomenon under study, enhancing the rigour of the study. Some of the results led to similar conclusions, which contributed to creating a richer understanding by aligning different perspective. In cases where discrepancies occurred, I critically examined the differences to identify underlying factors and integrated diverse viewpoints to enhance the overall analysis. Additionally, some of the results related to different aspects or phenomena but were complementary to each other and used to supplement the individual results. Tengo *et al.* (2014) emphasised that different knowledge systems, such as indigenous and local knowledge, has its own internal processes for ensuring its legitimacy. By combining the knowledge systems, a rich, multifaceted understanding is created through reciprocal exchanges and cross-examination (Tengo *et al.*, 2014).

9.1.4. Researcher personal reflections

My personal background and identity as well as my social science expertise outlined in Section 2.5, contributed to some unexpected insights. For example, it was surprising to find that most of the participants did not know about the real reasons for the sites sacredness, especially in Mabasa. It was also interesting to find that local knowledge about certain events or experiences were often linked or directly related to policies, even when community members were unaware that these policies had been formally enacted. This underscores the gap between policy implementation and grassroots awareness, where regulations influence daily practices but are not always explicitly recognised as imposed frameworks. On the other hand, my awareness of cultural sensitivities aligns with the idea of customary secrecy. In this way, the research contributed to some of my assumptions about the accessibility of knowledge of these sacred spaces as customary secrecy shaped what was shared. Despite this raising concerns about the depth of information shared, it highlighted cultural continuity that persists despite external pressures. Even though customary secrecy can be seen as a barrier to transmitting and documenting knowledge, I respect that it is an expression of cultural resilience.

Engaging with local communities and governance structures further shaped my thinking, by reinforcing the power dynamics outlined in Section 2.5, and the difference in the extent of knowledge that was known by community members the royal family or the TA versus ordinary community members. I also expected more tension between the TAs and external conservation efforts, but I found that the community leaders were open to adaptive strategies, provided that conservation authorities respected cultural protocols. This realisation allowed me to better understand the communities' view on collaboration and the importance of mutual respect between TAs and external conservation organisations.

My background in social science and the methodological approach I employed helped to contextualise the study's findings by engaging reflexively. By integrating multiple types of data, it allowed me to develop a more comprehensive understanding by connecting overlapping and divergent narratives. This

approach was both a challenge and an opportunity for deeper engagement with the local communities in this study. My view as a scientist, that is informed by my social science background, is framed by the importance of adopting holistic approaches to understand human-nature problems. This perspective of mine is also grounded in the belief that traditional knowledge systems offers valuable insight into enhancing our understanding scientific concepts.

9.1.5. Future research

Given that the holy and the sacred are poorly conceptualised in the literature because the term SNS has been coined and disseminated by conservationists rather than by religious scholars, future research can focus on defining sacred areas, culturally significant areas, and community areas with greater focus on examining emotions, attitudes and behaviours concerning relations between local communities and both the natural and the supernatural worlds that characterise SNS (Sinthumule, 2022). Although this study has not placed extensive focus on spirits that inhabit or reside in the SFs, this study recognised the role of cultural and spiritual significance of these spirits in their governance and management of SFs. This study assessed the associated norms and rules of customary institutions that are complimented by governance of the SF spirits. However, future research can focus on the cultural and ritual behaviour associated with resident spirits. Future studies should also focus on developing ways to understand and offer ways to restore and strengthen the spiritual dimension of human–nature relationships that, according to Verschuuren (2010: 62), “may contribute to moral and ethical arguments for nature conservation”.

With the breakdown of traditional belief systems (Chapter 4) coupled with rapid socio-economic changes (Chapter 6), the ecological integrity of the SFs, like many others (Nganso *et al.*, 2012), are under threat. Consequently, it is imperative that more research on the biodiversity and socio-economic mechanisms of these biocultural communities is conducted to fully understand and realise the potential of SFs for biodiversity conservation in South Africa. This study primarily focused on plant species. Other studies could consider animal species and genetic diversity which could help in understanding the full impact of cultural practices and conservation strategies on biodiversity within SFs. This study has also contributed to botanical surveys of the SFs, however, there is still a need for greater inventory of the number, size, and distribution of SFs and botanical surveys which may result in the discovery of new species.

9.1.6. Recommendations to protect sacred forests

This study used the BCD approach to inform conservation and management efforts. This study calls for the incorporation of SFs into national forest conservation programmes as well as the enhancement of traditional laws, regulations, and customs to improve conservation outcomes.

The deterioration of traditional leadership and governance systems can be strengthened through revitalising the role of the TA for better management of SFs and the preservation of cultural traditions. This can also be achieved by ensuring active community participation. For example, enhancing the capacity of local leaders and fostering youth involvement in cultural and environmental stewardship. Furthermore, the disconnect between the youth and their cultural values and practices, can be addressed through education and awareness building by incorporating the local cultural history and TEK into the education system. Regular awareness campaigns can be conducted to bridge the knowledge gap, particularly among the youth, and reinforce the cultural significance of SFs. For instance, develop SANParks-supported community-led education programmes that integrate TEK into local school curricula and conservation initiatives to inform younger generations of SFs and their governance to overcome intergenerational knowledge loss. Additionally, digital and in-person platforms (e.g., SANParks visitor centers, mobile heritage exhibits) to document and share oral histories about SFs can be established to make them more accessible to youth.

Although the ecological analysis and remote sensing analysis have shown that the SFs remain largely intact, the increased commercialisation of *muthi* has raised concerns about biodiversity pressures. Sustainable harvesting guidelines can be developed through SANParks' Biodiversity Economy Programme and should focus on "targeted" conservation measures to deal with the over-harvesting of specific plant species (Table 6.2). Community-based ecological monitoring programmes in partnership with SANParks can also be implemented.

Given that these sites are not formally recognised by national policies and frameworks, inclusive and adaptive management approaches by embracing co-management strategies that involve various stakeholders, including government agencies, local organisations, and the community should be motivated. There can be increased community engagement and participation in decision-making processes related to land use and conservation. This collaborative efforts could work towards co-developing governance models that integrate SFs into SANParks' Mega Living Landscapes framework to overcome traditional governance disruptions due to colonial legacies and modernisation. Co-developing governance models will ensure formal conservation support, while maintaining local custodianship. Co-management can lead to more sustainable and culturally sensitive conservation practices. This can be done by encouraging respect for traditional governance and conservation norms annual events or ceremonies that can be hosted in collaboration with SANParks or other organisations to strengthen community conservation awareness. While spiritual beliefs historically played a role in forest protection, some community members now prioritise economic benefits over conservation. As a result, the cultural significance of the SFs need to be shared and documented through intergenerational knowledge (e.g., oral histories and storytelling, or local exhibitions where communities can share knowledge on their own terms). Cultural measures are meant to enhance the spiritual values which will contribute to the sites protection and will ensure judicious use of resources. This highlights a greater

need for integrated forest management frameworks that reinforce traditional governance and sacredness to enhance the biological significance and conservation effectiveness of SFs.

Finally, these communities, particularly in Mabasa, have expressed a strong interest to proclaim these sites as heritage sites for both cultural and ecological preservation. Legal protection and sustainable ecotourism through formal legal recognition of SFs, could provide economic incentives for conservation while reinforcing cultural values and traditions. Amid the tension between expanding the PA network and avoiding the disruption of economic models of extraction and land use, the global emphasis on OECMs reflects the political reality for the need to expand formal PAs that have reached their limits. However, OECMs risk becoming a mechanism to meet area-based conservation targets under the Global Biodiversity Framework (GBF) that is reduced to statistical contributions towards the 30x30 target. For example, study by Alves-Pinto *et al.*, (2021) highlight concerns that countries might artificially inflate conservation coverage statistics, i.e., overemphasis on coverage numbers rather than meaningful outcomes and underestimating complex aspects like biodiversity quality.

South Africa has not yet developed any standard procedures, criteria or guidelines for identifying or recognising sacred natural spaces as OECMs. According to Sinthumule (2025), the lack of clear policy frameworks and guidelines specifically designed for OECMs in South Africa creates implementation uncertainties. To prevent the imposition of culturally insensitive frameworks, this study critiques reducing SFs to 'land parcels' under the OECM framework. Sacred spaces should be recognised as dynamic, living cultural landscapes shaped by spiritual practices and traditional governance. This recognition underscores the need for OECM assessment criteria to consider their spiritual, cultural and governance dimensions that have long sustained these sacred spaces. In particular, the dual custodianship of SFs, i.e., where the leading custodians ensure the fulfillment of cultural and spiritual roles and their physical management, reveals complex systems of governance rooted in traditions. Where the loss of indigenous religious values have undermined long-term conservation, SFs become vulnerable not just to ecological threats, but to the erosion of traditional governance structures. International conservation frameworks often fail to recognise that the sustainability of these forests depends on intact cultural systems. Consequently, scenario workshop participants in this study called for collaborative conservation and co-management, which involve both TAs and community members in conservation efforts. This study resonates with Sinthumule's (2025) call to ensure that OECMs do not undermine the cultural meanings of these sites and further emphasises the need for local communities to remain central to conservation efforts. The scenario workshop participants and local leaders in Mabasa and Mazizini pointed out that meaningful conservation must be community-driven and built from the bottom up. Moreover, the creation of hybrid governance models that respect traditional leadership while allowing for compliance with national laws can help re-legitimise customary systems and avoid imposing conservation frameworks that alienate communities.

This study also echoes Jung and Oh's (2025) emphasis on the importance of assessing governance systems to determine the level of cooperative governance needed amongst the diverse stakeholders. The findings also call for progressive legal reform that includes local voices in policy-making, which ground the OECM criterion of sacred natural spaces in local realities. This approach will allow the ability to reflect the local socio-political realities and fragmented governance that actually shape how these landscapes are used and valued. This would require international conservation efforts to go beyond understanding the land conservation value of these sites and instead, understand and respect the complexity of local beliefs and traditions, and ensure that local belief systems aren't just co-opting local belief systems into global agendas that strip them of their meaning and autonomy. Similarly, Ramos (2023) found that when conservation is viewed through a lens of international frameworks, indigenous beliefs and practices risk being used primarily to achieve biodiversity goals as it fragments and disembodies the very foundations that enable local communities or custodians to contribute to conservation. She cautions that indigenous peoples should be recognised for their intrinsic value, i.e., respecting them on their own terms, since being "land-based" encompasses governance systems, ways of life, spiritual beliefs.

While OECMs aim to connect governance and management with long-term in-situ conservation, they should not exclude sites like these based on formal governance gaps alone. This study also emphasises the need for government and NGOs to support the strengthening of traditional governance systems that were systematically disrupted under colonialism and apartheid. The Mabasa community, for instance, has expressed a strong interest to protect these forests, particularly as heritage sites to preserve both cultural and ecological values. This study also critiques the use of quantitative site evaluations of the local biodiversity to determine alignment with the governance criteria set by the IUCN-WCPA (2022) for verifying the effectiveness of OECMs. The findings from Mabasa and Mazizini complicate these assumptions that the existing OECM criteria can be universally applied. The Funjwa and Nhlankomo forests support biodiversity, including at least one rare or endangered species, and a wetland ecosystem in the Funjwa forest, and should therefore be eligible for recognition. In both contexts, the designation of these SFs as OECMs might be essential to reinforce traditional governance structures and to promote long-term biodiversity outcomes.

These findings offer a foundation for developing more culturally informed criteria and guidelines for SF designation as OECMs in South Africa, to help reduce implementation uncertainties in oversimplifying the entanglement between cultural tradition, governance and ecological value. Thus, the recognition of these SFs as OECMs under the Convention on Biological Diversity should be explicitly tied to recognising and strengthening customary and sacred governance structures, rather than imposing external conservation frameworks. Ultimately, strengthening traditional governance systems, long undermined during the pre-democratic period, is critical, as resilient governance not only safeguards cultural meaning but also provides the foundation for sustaining stronger biodiversity outcomes. The

link between site purpose and conservation outcome in culturally embedded contexts like SFs requires closer scrutiny. Greater policy engagement can be achieved through the Department of Forestry, Fisheries and the Environment (DFFE) and local conservation authorities could support this goal.

9.1.7. Conclusion

The sacredness of these forests has not contributed to a significant difference in their biological diversity, likely due to the deterioration in traditional governance and the lack of fear of ancestral retribution. Instead, the socio-economic context of these communities play a more prominent role in preventing these sites from degradation. Nevertheless, their sacred significance does not diminish, which raises questions about how OECMs are evaluated. Based on the criteria of OECMs, the SFs in this study, particularly in Mabasa, will not qualify as OECMs due to them not being traditionally governed. However, recognising their potential as OECMS could provide an opportunity to improve the traditional governance systems that once preserved these sites. Collaborative efforts amongst organisations could also help restore the spiritual values and biocultural relationships of these SFs that translate into biological outcomes. These sites should be considered as community-conserved areas, given the local communities' desire to commit to their preservation. However, this study also illustrates cultural sensitivities, such as customary secrecy particularly in reference to the *Hlathi lama Khosi* in Mazizini, that may challenge their formal inclusion in conservation frameworks. Since OECMs require demonstrated contributions to biodiversity conservation, the difficulty in assessing these sites due to restricted access may result in their official recognition being excluded. Such challenges raise concerns about how sacred natural sites can be integrated into conservation policies while respecting certain traditional values and practices.

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Appendix A

“Decreased”, “Increased”, “Unchanged” or “Absent” over 20 years for the year categories below for Sections A, B and C		
Section A: Forest structure Change	2000-2010	2011-2020
Forest Size		
Forest Canopy Opening		
Plant composition		
Animal composition		
Section B: Forest Ecosystem Services (ES)	2000-2010	2011-2020
E.g., fuelwood		
E.g., medicinal plants		
E.g., building material		
E.g., cultural activities / tourism		
Section C: Use	2000-2010	2011-2020
Number of users		
Reliance of forest ES		
Types of rules, norms, behaviours		
Respect of rules, norms, beliefs		

Appendix B

Oral history interview prompt-sheet

The questions that will be asked during to the oral history interviews require the researcher to enquire about the informants’ lives, how their lives changed, why they think it has changed and what they think about these changes?

Impromptu questions

To acquire more detail about these changes, events, processes or drivers that affected their lives, here are some examples of impromptu questions that will be asked e.g., when did this happen?, Why?, How long did this take place/over what time period?, How far or widespread were these affects?, What were the consequences? For how many years were these consequences felt and how widespread were these felt?, Whilst this event was occurring, were there any other events that occurred during this time or did this event overlap with another?, Did this event reinforce or diminish another? Or did this event or process create a new event?, Did these causes, events or processes have the same effect or consequence, or different ones?, Did these causes or processes reinforce or intensify the consequences felt, or did these causes reduce the consequences felt?, Were these consequences positive or negative (by who’s definition)?, How did you feel?

Prepared questions

Participant information and family history

1. How far do you live from the Funjwa/Nhlankomo forest and in which area in Mabasa/Manzini do you live?
2. Which tribe do you belong to or what is your clan name? Are you from the royal family or not?
3. How did you make a living?
4. Were you given the opportunity to go to school or get an education? If not, why? If yes, how far did you get in your education (level of education)?
5. What do you do now, what are your main sources of income?
6. What does your child/children do for a living (socio-economic status)? Do they live here?
7. Were/are your parents from Mabasa/Manzini? If not from Mabasa/Manzini, why did they move here?
8. Did your parents tell you any stories about King Funjwa/the Chiefs or Mabasa/Manzini cultural history? If yes, what were these stories?
9. Did they share their beliefs? What did your parents believe in?
10. What did your parents teach you growing up (in terms of culture, ancestors and beliefs as well as in protecting nature i.e., in terms of saving nature for future generations)?
11. What beliefs do you hold (your religious affiliation)? Do you have the same beliefs as your parents or has this changed?
12. Are any of your beliefs connected in some ways to the Funjwa/Nhlankomo sacred forest? If yes, in what ways?
13. What relationship do you share with the forest and why?
14. What is required of (their responsibilities) members of the community and as care takers (or custodians) of the Nkosi's land and the Funjwa/Nhankomo forest?
15. Use of forest or forest products?
16. What foods are or were grown or collected or bought?
17. Have there been dietary changes, if yes, what are they?

Traditional ecological knowledge (TEK) and custodianship

18. Following up on Q14, are these responsibilities and duties the same as in the past or has this changed over time? If yes, what have you noticed (seen) and why do you think this has changed over the years (what caused these changes)?
19. Have there been or will there be any consequences to these changes?
20. What knowledge do you have to protect the environment and the forest? How did you gain this knowledge e.g., from your observations over the years, your close contact with nature or knowledge that was passed down to you?
21. In what ways did you contribute to safeguarding TEK or traditional practices, and has this changed i.e., the need to pass down knowledge or traditions? If yes, in what way/s?
22. Has TEK been lost over the years (i.e., modernization, technology, schooling, or integration into the market economy)? What have you experienced or noticed?
23. Have any or multiple forms of ecological knowledge and of environmental ethics been lost (Rozzi et al., 2020)?
24. Why has it been lost and how do you feel about this?
25. Has this affected you in any way?
26. Who had knowledge?

Cultural beliefs, uses and practices:

27. How were you raised in terms of cultural practices as compared to today's generation?
28. What are some of the cultural uses now and in the past?
29. In what ways, if any, are cultural uses and beliefs different now as compared to the past-what cultural products have changed (note: one way to measure cultural values and their shifts on a societal level is by analyzing cultural products)?
30. If there are any changes, what caused these changes and what were the consequences?
31. Following Q28, how did people respond to these changes? How do you feel about it?
32. Which of the cultural practices and beliefs that you mentioned have been conducted for generations?
33. Which of the cultural practices and beliefs that you mentioned have disappeared or been lost over the years and why?

34. In what ways did you contribute to safeguarding some of these cultural traditions, practices and/or beliefs, and has this changed i.e., the need to pass down knowledge or traditions? If yes, in what way/s?
35. Are there any significant ceremonies and/or rituals conducted in the forest or which require forest products? What purpose do these serve?

Socio-economic indicators

36. In general, what was life like for you in Mabasa/Manzini in the past or when you were young, and how has your life changed over the years? How would you compare your lifestyle when you were young to that of the youth of today?
37. What was the community and surrounding area like when you were young as compared to the present i.e., the natural environment, the forest and roads, hospitals, churches, shops, etc?
38. Could you tell me when was the first school, road, church, shop and hospital/clinic established?
39. Were you or your family able to access school, go to church and conduct your own cultural traditional practices, and had the opportunity to apply for any job? If not, please explain why.
40. In what ways did these developments affect local livelihoods, beliefs, cultural values, forest use and cultural practices within Mbzwana/Manzini and what were the results from these developments specifically to the community of Mabasa/ Busingatha and Bonjaneni??
41. If Q39 is not sufficiently answered or understood- here is the follow up question. What changes did these developments bring about? Did it make life easier or harder for you, in what ways or how did it change your way of life and your traditions?
42. What caused these changes (excessive consumption/market economy, deforestation, over-exploitation of resources, youth migration for employment and urbanisation)?
43. What are your thoughts with regard to the rise in churches and what have been the consequences of this? In what ways did this impact cultural beliefs or traditions?

Political and cultural history at both local and national scales and their impacts:

44. What are some (cultural or political) historically monumental events/processes or events that are important to you (including tribal governance and government) that took place? Did these events affect the community?

Can we talk about the history of the people of Mabasa/Manzini and the history of the community related to the following: History of the Nation

45. Did the apartheid government have any affect on the community? Do you remember stories of the apartheid government that affected the community and the way of life in both good and bad ways (assimilation, destabilisation, political indoctrination, type of land ownership- at the local level)?
46. Were people still allowed to conduct their ancestral practices and beliefs?
47. Did the apartheid government or post1994 government affect the autonomy of the tribal authority? If yes, in what ways?
48. Following Q46, did tribal authority have a stronghold in the community? If yes, how? If no, how was tribal authority's stronghold affected?
49. How has tribal authority governance and power changed over the years (integrity) and why?
50. What were the respective consequences/impacts felt in terms of livelihoods, belief systems, uses/practices and governance?
51. Has there been any affects on indigenous languages within the community and what were the respective causes?
52. What were the effects of this (linguistic homogenization) within the community (reduction in "the spectrum of concepts and worldviews with which biological and cultural diversity are perceived, understood, and valued)?

Moving on to the Zulu royal history and the sacred forest:

53. Has the Zulu kingdom any influence on the Mabasa/Manzini community? If yes, how so?
54. Do you remember anything about King Shaka, King Zwide or King Funjwa and their legacy or importance to the people of Mabasa/Manzini? [Zulu war, etc.].
55. Did any of these Kings change or impact the way of life for the people of Mabasa/Manzini? If yes, in what ways?
56. Who was King Funjwa and why did King Funjwa come to Mabasa?
57. Following Q 55, what did the community practice prior to his arrival?
58. What changed after King Funjwa came into power and after his death?
59. What relationship is there between King Funjwa and the Funjwa forest?

60. Could you tell me more about why the Funjwa/Nhlankomo forest and its history is important to the people of Mabasa/Manzini?
61. Hence, are community members custodians of the Funjwa/Nhlankomo forest?
62. What was the condition of the sacred forest in the past as compared to now?
63. You have also mentioned the causes for these changes i.e., the driving forces that have contributed to these changes in terms of the attractors/actors, and their respective consequences of these changes. How have these changes affected society and the environment as a whole?
64. Now could you tell me, how did the community respond to these environmental or societal changes?
65. Who observed these changes?
66. Will these changes persist?
67. Will these changes strengthen/weaken cultural practices, traditions, indigenous environmental protection?
68. How has the society's capacity to apply/pass on cultural heritage and practices? Is the community able to still create (generate), recreate (regenerate), pass on (transmit), and put into practice (apply) knowledge?
69. Do you think cultural traditions, beliefs, practices and use will live on forever (perception on biocultural integrity of the community- in terms of longevity and cohesion) and has the ability to stay intact?
70. How to move forward (this may be discovered more clearly from the scenario developments)?

Annexure A

Organisation	Name of contact	Position	Contact details
ESKOM	Enoch		071 1964 210
ESKOM	Mr Nhlanhla Ngema	Officer Stakeholder Relations	036 342 3280
Spionkop Lodge	Lynett/Raymond		036 488 1404
Ezemvelo KZN Wildlife	Siyabonga Nxumalo		
COGTA	Mr Mathunsi		082 075 1427
Ladysmith: COGTA	Mr Miya	Mazizini	073 800 6855
Escourt: Transportation and roads	Mr T.I Sithomo		
Ladysmith: Transportation and roads (Regional)	Miss Maghubane		036 638 4000
Department of Transport	R.M Mdelela	Manager	083 647 0057
Mabasa: Royal family	Lungisani Nxumalo		076 625 5909/ 083 393 6980
Umlabuyalingana Municipality	Fanele	Housing project	FaneleM@mhlabuyalingana.gov.za
Umlabuyalingana Municipality	Fezeka	Housing project	FezekaQ@mhlabuyalingana.gov.za
Mseleni Hospital	Dr L.L Hobe		035 574 1004
Mseleni Hospital	Dr Fredlend		072 807 3059
Zenzeleni High School	Mr F.F Gumede	Deputy Principle	076 314 9182
Ulundi: COGTA	Ncebekhulu or Sandile Ngcobo	Secretary	033 897 5707
Pietermartizburg: COGTA			033 395 2831
Pietermartizburg: Archive services	Tankiso Thebula		033 342 4712
Isimangaliso Wetland Park	Sifiso Vumase		sifiso@Isimangaliso.com
Manguzi Local Municipality			035 592 0680/ 9628
Msunduzi Municipal Library			033 387 1161
Ulundi: Archive services			
Wildlands Trust	Kirsten Oliver		kirsteno@wildtrust.co.za
Wildlands Trust	Ncamisile		ncamisilez@wildtrust.co.za
Pietermartizburg: National Mueseum	Dr Justine Wintjes		033 345 1404/ j.wintjes@nnsa.org.za
Busingatha Clinic			
Rand Water	William Nessel	Water Wise project	016 430 8500/ 086 010 1060
Ingonyama Trust Board			033 846 9900
AMAFA	Celeste		033 394 6543
UKZN PMB Library			033 260 5111/5258
Killie Campbell Library			033 845 1999
Ezemvelo KZN Wildlife	Dr Sonja Kruger		Sonja.Krueger@kznwildlife.com
Tokozisa Information Centre			
Department of Agriculture	Zezi Mkosi	Assistant manager	082 921 9398
Department of Agriculture	Mr L.M Khumalo		076 821 7909/ 073 245 8667
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Annexure B

