

Chapter 10

Conservation-Based Tourism Development, Climate Change, Inclusion of Locals, and Post-human-Wildlife Co-existence Conflicts



A Case Study of Gonarezhou National Park

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Abstract There is a growth in knowledge on complex interaction between people and parks. However, conservation-based tourism development, climate change, local inclusion, and post-human-wildlife co-existence conflicts in African Transfrontier Conservation Areas, is still limited especially as joint field. The study area is described and presented using maps and cartographic illustrations to picture territorial boundaries. The discussion upholds evidence on symbiotic linkage between the effects of climate change and communities whose livelihoods are impacted by these effects. The increase in population and migration into lands close to national parks has led to humans encroaching on wildlife habitats, exacerbating human-wildlife co-existence conflicts. On the other hand, conservation-based tourism development initiatives are perceived by locals as only involving elite communities, excluding many. The COVID-19 pandemic and lockdowns have exacerbated the impact of the above-raised factors. There is a paucity of information about this complexity from the perspective of the human behavioural lens. In this context, effects, challenges, trends, opportunities, and solutions/practices are yet to be explored. This chapter aimed to fill the gap by assessing trends and patterns in research-based knowledge, with Gonarezhou National Park, Zimbabwe, as a case study while setting a research agenda for the research community in post-COVID-19 health crisis. A critical-scoping review analysis was used while following Creswell qualitative analysis framework to analyse research data from Google Scholar, Scopus, Web of Science, Science Direct and Sabinet databases between 2000 and 2023. Based on maps, and cartographic illustrations, there are territorial changes over the period as

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society (territorial boundaries, activities, cultures and learnt behaviours of people), environment (climatic changes, and composition of biodiversity) and COVID-19 pandemic and lockdown measures propelled a 'cause-effect' for human-wildlife co-existence conflicts (illegal hunting of wildlife and over-harvest of herbs and wood included). Within this context, the study unveiled four areas, namely: (i) limited evidence on local community/household (stakeholders) engagement; (ii) a paucity of human-behavioural focused models/theories in post-human-wildlife conflicts; (iii) limited knowledge of the nexus between the topics under consideration and multi-disciplinary research; and (iv) the need to document theory-in-practice, strategies, potential opportunities, and solutions to challenges. The study assessed the trends and patterns prevailing in conservation-based tourism development, climate change, local inclusion, post-human-wildlife co-existence conflicts and effects of the COVID-19 pandemic and lockdown measures in communities around Gonarezhou National Park, Zimbabwe. There are changes in vegetation, land use as well as the composition of biodiversity. Conservation authorities should balance perceived value on the wellbeing of communities and biodiversity in initiatives aimed at conserving the biodiversity in the Gonarezhou National Park. The study derived insights that can be used to establish actionable strategies for local community participation and involvement in conservation-based tourism, empowerment and alternative livelihoods that brings resilience and better conservation and preservation of biodiversity using indigenous knowledge systems (community intelligence) while mitigating climatic changes and effects of the COVID-19 pandemic and lockdowns. The study recommends future in-depth empirical research on the complexity of interactions between conservation-based tourism development, climate change, local inclusion, and post-human-wildlife co-existence conflicts. It also emphasises the importance of conducting research using a human-behavioural lens.

Keywords Conservation-based tourism · Climate change · Local inclusion · Human-wildlife conflict · COVID-19 · Transfrontier conservation areas

Introduction

Human activities influence the state of Earth (Musakwa et al., 2020a, 2020b). There is a relationship between livelihoods and how humans exploit natural resources in responding to household needs which alters and induces complex interactions in land use (Steffen et al., 2015a, 2015b). The phenomenon mentioned above is described by Steffen et al. (2007) as humans overwhelming the forces of nature, compromising aspects like biodiversity conservation regardless of the establishment of designated protected areas. The narrative given by Steffen et al. (2007) justifies the establishment of global challenges by the United Nations that have intersectional linkage on land usage, communities and their well-being, climate, land degradation, and loss of biodiversity (see also UN-SDG report, 2022).

African landscapes have visible impacts of human interactions with nature (Griscom et al., 2010), which exhibit competing interests like conservation, livelihoods, farming, and resettlements in drylands of sub-Saharan Africa (Kihara et al., 2020; Shackleton, 2018). Within this context of competing interests, Musakwa et al., (2020a, 2020b) view terrestrial interactions as ecosystem services that need relevant management by humans. In addition, unlike most urban societies, rural communities have structures and processes that nurture effectiveness and resilience if the locals are engaged compared to top-down instructive management (Wisely et al., 2018). Therefore, it is crucial to understand the dynamics of the social fabric of rural communities around conservation areas.

Interestingly, Africa has 18% of its land allocated and converted into conservation areas. In Zimbabwe, only 27% is designated for similar purposes (UNEP-WCMC, 2020). Subsequently, the changes in landscape impact the livelihoods of communities around or living in the designated conservation areas (Kamwi et al., 2015; Shackleton, 2018). Taking a step back, creating conservation areas came with social, economic, and political transformations within the communities (Wu, 2013). For instance, the creation of Gonarezhou National Park (GNP) in 1975 influenced growth in biodiversity conservation and tourism; however, locals were displaced, and their livelihoods were negatively affected (Musakwa et al., 2020a, 2020b). The impact of climate change like extreme temperatures, droughts, and sometimes floods from cyclones that the south-eastern lowveld is consistently experiencing worsens concerns about people's livelihoods.

Sustainable Development Goal-13-Climate Action is one of the areas that even the UN has indicated as needing more support in receiving data from developing countries, predominantly rural and vulnerable communities (UN-SDG report, 2022). From the same standpoint, climate change induces disruptive changes in humans, biodiversity, and landscape in conservation areas (Steg, 2018). The changes include consistent low rainfall and droughts, resulting in the loss of forests, woodlands, habitats, animals, and infrastructure that support tourism (Pettoirelli et al., 2012), and extreme hazards like cyclones (Eline, Idai, Freddy). The impact on people includes loss of livelihoods due to forced migration and food insecurity (Gandiwa & Zisadza, 2011; Otto-Mentz, 2019). Furthermore, it affects the relationship between access and ownership of resources, land use, and weather that continues to be un conducive for subsistence farming in drylands. An increase in the population in 2000 due to land reform in Zimbabwe led to consistent migration into lands close to national parks and encroaching into wildlife habitats. The resulting alternative means to support livelihoods through activities like poaching exacerbates human-wildlife co-existence conflicts and challenges in recovery in post-human wildlife co-existence conflicts (P-HWCC). Human-wildlife co-existence conflicts comprise a wide range of situations where either wild animals or humans encounter where they attack each other for different reasons (Masse, 2016; Thondlana et al., 2020). While post-human wildlife co-existence conflicts is a term that refers to the life of either wild animals or humans in the aftermath of the attacking encounter (s) (Thondlana et al., 2020). Consequently, the authors of this chapter believe, challenges are faced when implementing conservation-based tourism developmental initiatives, which locals perceive

as vehicles to compromise neoliberalism because they involve the elite community members only while excluding the regular residents.

A critical-scoping review analysis was used while following Creswell's qualitative analysis framework to analyse research data extracted from Google Scholar, Scopus, Web of Science, Science Direct, and Sabinet databases as international databases with research conducted from 2000 to 2022. These were augmented by the lived experience of one of the researchers who grew up in the Mahenye rural community and his social network. Furthermore, the chapter searched, identified, selected and synthesised extant literature and shared experiences of life after human life co-existence conflicts that have implications on knowledge and insights that can guide future community-based collaborations for biodiversity conservation initiatives. Within this context, the study provides knowledge that has an impact on the processes of physical, human, and wildlife-based geography in addressing where sources and sociobehavioural challenges influence and shape the distribution of nature and human interactions in Gonarezhou National Park and surrounding communities. In the end, the chapter provides insights towards understanding the foundation of knowledge on the topic. Identify areas of prior scholarship to prevent duplication and give credit to other researchers. Identify inconsistencies: gaps in research, conflicts in previous studies, open questions left from other research aimed at the advancement of spatial science (physical geography, community-based biodiversity conservation and ecosystems, and human socio-economic geography) in the south-eastern lowveld region of Zimbabwe.

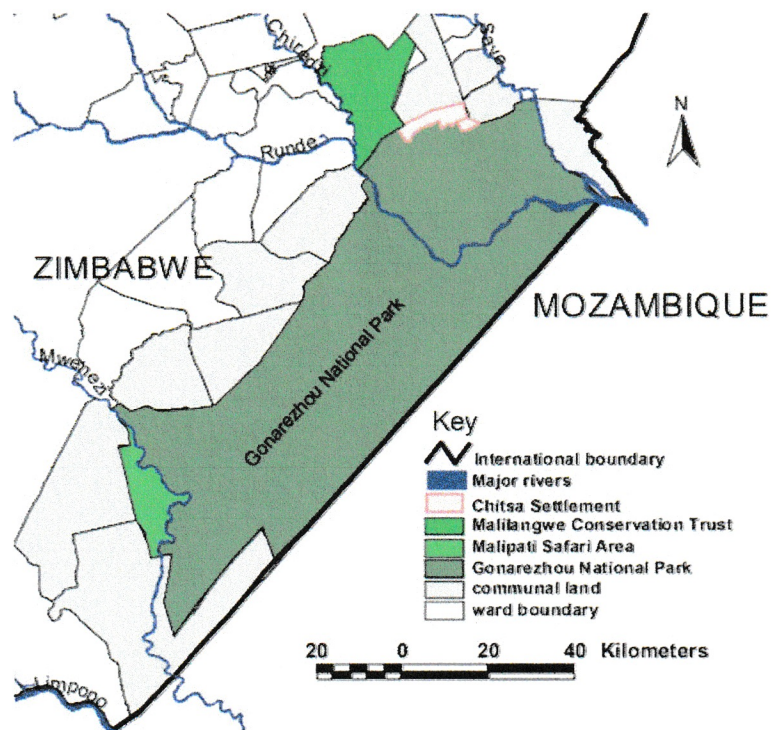
The structure of the chapter is as follows. First, the background to study. Second, is the material and method used by the researchers which includes the approach and analytic framework. Third, the findings and discussion which entails the literature review for the study established conclusions, and the contribution to postulate future research agenda on areas which are still 'blind and blanks' for the topic under study.

Background to Study

Study Area

GNP is located in the south-east of Zimbabwe alongside the border with Mozambique, stretching between the Mwenezi and Save Rivers, 21°00'–22°15' S and 30°15'–32°30' E (see Map 10.1, 10.2 and 10.3; Martini et al., 2016; Ntuli & Muchapondwa, 2018). The present chapter considered research on ten communal areas around GNP (Ntuli & Muchapondwa, 2018, see Map 10.1). The communities have been participating in wildlife conservation and tourism in various ways while experiencing impacts of climatic change and post-human-wildlife co-existence conflicts since GNP was established in 1975 (Martini et al., 2016).

GNP has a roughly rectangular strip of land varying in some areas 35 km, while others 45 km in width and approximately 135 km long (Martini et al., 2016; see also



Map 10.1 Map of GNP (in dark green) and the communal areas (in grey) bordering the national park (Martini et al., 2016; Ntuli & Muchapondwa, 2018, p. 143)

Map 10.1). Together with the adjacent Malapati Safari Area, the total size of the study area is approximately 5053 km² (Martini et al., 2016; Ntuli & Muchapondwa, 2018). GNP forms part of the Create Limpopo Transfrontier Conservancy Areas, which comprises a conjunction of Kruger National Park (KNP) of South Africa and the Limpopo (LNP), Banhine (BNP) and Zinave (ZNP) National Parks of Mozambique (Martini et al., 2016; Ntuli & Muchapondwa, 2018; see also Map 10.2). GNP has rugged terrain and is located away from the main tourist routes, resulting in a more extensive pristine wilderness (Ntuli & Muchapondwa, 2018; see Map 10.3).

The Existing Knowledge Gap Within the Zimbabwean Lens

GNP received research attention both from an empirical and literature review lens since 1935 when it was considered a game reserve. By then, it was in the hands of Zimbabwe National Parks and Wildlife Management Authority (ZNPWMA), but now it is a national park under Gonarezhou Conservancy Trust (a partnership between ZNPWMA and Frankfort Zoology). Musakwa et al., (2020a, 2020b) explored

community perception of landscape and climate change, ecosystem services, and livelihoods. Other studies considered facets like forests (Mero Dowo et al., 2018), carbon sequestration, and human-wildlife co-existence conflict (Gandiwa et al., 2013; Mandudzo, 2019; Mombeshora & Le Bel, 2009), sustainable livelihoods (Muboko & Bradshaw, 2018; Mutanga et al., 2017), landscape change (Tafangenyasha, 1997), and climate change and its impacts (Frischen et al., 2020; Gandiwa et al., 2016) as separate fields and research in these areas is still limited and scattered. The studies in conservation and people have yet to link conservation-based tourism development, the inclusion of locals, climate change and post-human-wildlife co-existence conflicts and livelihood. Hence a better picture can be obtained first by mapping extant literature. The chapter loosely considers territorial boundaries analysis while attempting to explore existing knowledge on complex interactive relationships of biodiversity spatial distribution, the inclusion of locals in activities aimed at responding to climate change and conservation-based-tourism development and P-HWCC as a joint field of study.

Conservation-based tourism development is a concept that is proposed and derived from Community Based Natural Resources and Wildlife Management by the authors of this chapter. The aim is to preserve and conserve biodiversity and add value to the tourism value chain through consumptive and non-consumptive resources that attract visitors from other places. The effective participation of the hosting community can improve people's livelihoods (Giampiccoli, 2015). Community members around GNP consider the conservation area brought changes in access to resources like biodiversity. However, they were neither included (involved) nor consulted in creating the conservancy area, and GNP is part of the conservancy area. The communities around it feel that the creation of the corridor displaced the residents of their heritage (Defe & Matsa, 2021; Narula et al., 2017). While there can be negative effects on local cultures and environments (Giampiccoli & Glassom, 2020), local cultural behaviours benefit from community inclusion in conservation and tourism (Rasoolimanesh et al., 2017). Conservation-based tourism development initiatives face 'mixed bag reactions' during implementation. Speculations that the designated Sengwe-corridor will be used in animal feed production for a Zimbabwean dairy company worsen the situation. Therefore, including local communities is vital in Transfrontier Conservancy Area planning processes (Deegan, 2012).

Climate change is defined by focusing on the post-effect lens of greenhouse gas on weather patterns over a period of time (Pielke, 2005). This understanding is derived from the Framework Convention on Climate Change (FCCC), which considers climate change as the transformation of climate as attributed to direct and indirect human activities that alter the composition of the global atmosphere and natural climate variability over comparable periods (Pielke, 2005). The Intergovernmental Panel on Climate Change (IPCC) holds the same view and describes it as any change in climate over time, whether due to natural variability or human activity (IPCC, 2001). Therefore, the chapter upholds the above definitions because they share a similar meaning that nurtures the current discussion. This chapter's focus is not on debating the definition of climate change. However, it consolidates extant knowledge and evidence for a proposition for new ways of thinking that nurture social

innovation from a residents' human behaviour lens, at the same time indicating the research agenda to keep pursuing sustainability and resilience within the nexus of concepts under study (Defe & Matsa, 2021).

Within this context, the chapter provides insights towards managing dynamics in territorial boundaries and interactions, climate variability and distressing effects on communities from extreme weather and human-wildlife co-existence conflicts causing loss of life, human suffering and the destruction of infrastructure and natural resource base which livelihoods depend on (Defe & Matsa, 2021; FAO, 2015; UNEP, 2010). The insights would contribute to interventions on harmful interactions between the environmental, human, social, and economic capital within the local economy of communities and the national park (Adams, 2008; Defe & Matsa, 2021; Narula et al., 2017). Local inclusion is essential for a comprehensive understanding of social dynamics and interactions between community, tourism, conservation, and climate change as a joint field within the lens of sustainable practices (Giampiccoli & Glassom, 2020). Deegan (2012) considered that the inclusion of locals in Transfrontier Conservancy issues and business beyond political leadership is still at the infant stage of development and accountability.

It is, therefore, essential to explore extant literature on the interactions as mentioned above using a human behavioural lens under the following objectives.

- a. To explore the trends and patterns in conservation-based tourism development, climate change, local inclusion, and post-human-wildlife co-existence conflicts around GNP.
- b. To explore the stimuli underlying the attitudes, perceptions, and behaviours among individuals and households involved in human-wildlife co-existence conflicts towards conservation-based tourism development, coping mechanisms for livelihoods amid the impact of climatic change, and the extent of their inclusion in conservation-based tourism.
- c. To postulate a post-human-wildlife co-existence conflict human behavioural model that augments societal healing within social capital from impacts of climate change, human-wildlife co-existence conflicts, and inclusion of locals in conservation-based tourism development in GNP.

This chapter is the first study to take a specific focus on Gonarezhou National Park and its surrounding community from a joint lens of conservation-based tourism development, climate change, the inclusion of locals (rural communities around the national park located in a designated Transfrontier Conservancy Area) and post-human wildlife co-existence conflicts as a scoping review that considered pre-2020 to 2023. The set period is demarcated by the health pandemic that brought transformations that implicates rural community-behavioural intentions towards biodiversity and their inclusion into pathways towards conservation-based tourism development in Zimbabwe. Hence, the chapter identified, selected, and synthesised related extant literature and grey literature on Gonarezhou National Park, though the studies do not have a joint perspective on the phenomena in a single study like what the current chapter presents after the extant literature points out and reinforced the existence of the gap.

Methods

Approach

A critical scoping review (Creswell, 2014; Creswell & Poth, 2018) analysed research data obtained from Google Scholar, Scopus, Web of Science, Science Direct, and Sabinet as one of the largest databases that contain a wide range of research that only regard GNP and its surrounding communal areas from 2000 (before the COVID-19 pandemic and lockdown measures and in most countries after the COVID-19 pandemic) to 2023. The critical-scoping review did not establish a time-bound electronic search because the issues under study are not necessarily 21st contemporary issues but residential challenges that require scholars to keep building knowledge towards a better comprehension of the complex interactions between humans, biodiversity, and nature from research-based identifiable gaps and concerns. The data collection is presented in summary in Fig. 10.1.

Analytic Framework

Our research employed a critical discourse analysis in combination with a qualitative case study approach (Jennings, 2001) to analyse available data. A critical scoping review of current and relevant literature on the subject matter was carried out, with specific attention given to biodiversity in GNP and local communities around it. The literature was critically analysed, focusing on assessing the nature and complexity of interactions among conservation-based tourism development, the inclusion of locals, climate change, and post-human-wildlife co-existence conflicts initiatives using the common property resources principles. Consequently, data analyses were based on a case study design (Yin, 2003). The data analysis was done using Creswell's (2014) qualitative framework that supports the use of manual thematic analysis from a Common Property Resource (CPR) lens.

CPR theory served as the basis for developing a conceptual framework in this chapter because of its emphasis on how natural resources, particularly those shared by local communities, can be sustainably and optimally utilised. In addition, studies show Zimbabwe, among other African countries, cannot adapt the communities around parks and the tourism sector to the impact of climate change and post-human-wildlife co-existence conflicts. Recovery strategies are not in place, and the involved stakeholders are uncertain due to a lack of comprehensive tourism-climate-human-wildlife co-existence conflicts data coupled with inadequate research funding (Hoogendoorn & Fitchett, 2018; Kilungu, 2023; Kilungu et al., 2017). The situation gets complicated when seeking and making biodiversity conservation funding go beyond the 'fence' of wildlife-protected areas by incorporating local communities and their livelihoods. However, the local communities (social capital) bear scars

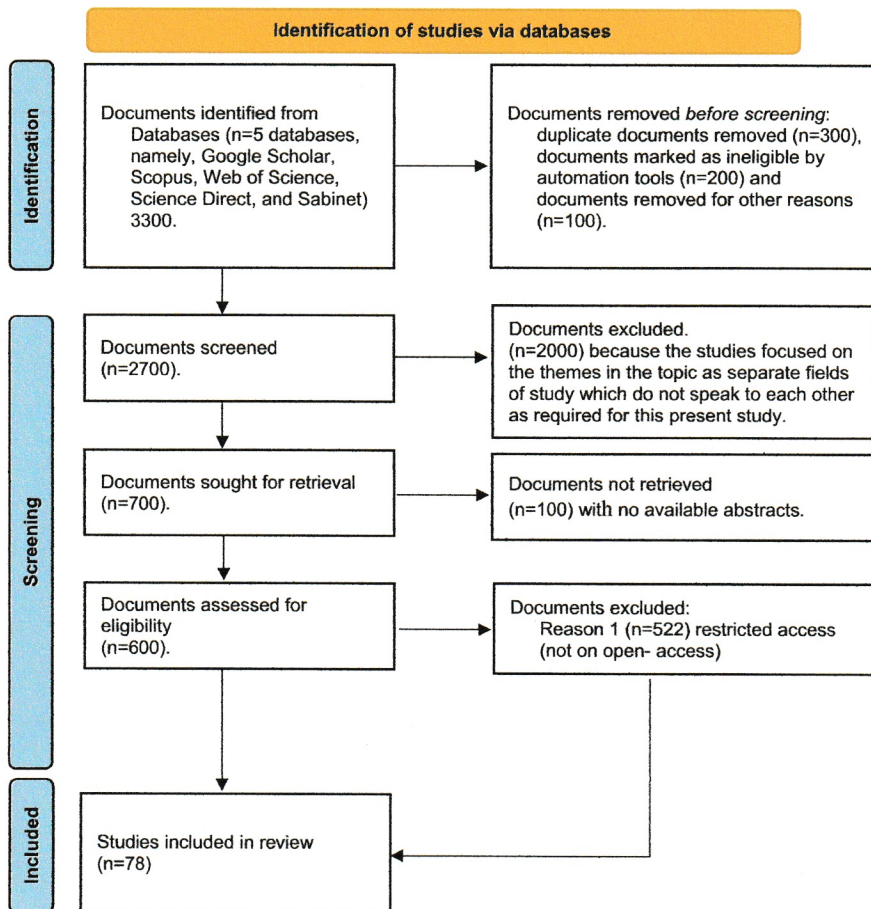


Fig. 10.1 Summary of the research approach in data collection for analysis. *Source* Adopted in part from Page, M.J. et al., 2020, PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021; 372: n71. <https://doi.org/10.1136/bmj.n71>

from human-wildlife co-existence conflicts, which give them mixed feelings about tolerating and valuing biodiversity beyond traditional norms and cultures.

Common Property Resources (CPR)

The increased frequency of natural and man-made disasters like floods, droughts, degeneration of biodiversity, pollution, loss of agricultural land, loss of wildlife, and overgrazing is now witnessed in the Global North and South. The theory of CPR explains the above challenges from a need to manage the utilisation of resources

from an interactive process-activity-based behavioural lens. Ostrom (1990) alludes that natural and environmental resources are presented as common pool resources that one exploits in a manner that leads to a reduction of the resource availability for others (subtractability); then, the exclusion of additional users becomes problematic and costly (difficulty of exclusion). Therefore, the CPR theory considers how community-shared resources can be utilised sustainably.

Scholars of CPR argues that all resources like forests, biodiversity, minerals, air, water, and water bodies such as rivers, lakes, and oceans held in common will inevitably be overexploited (Araral, 2014; Bromley, 1992, 1998a, b; Ostrom, 1990; Ostrom, 1999; Ostrom et al., 1999; Agrawal & Ostrom, 1999). They base this argument on how these resources, as mentioned earlier, have no private owner, access, and usage depend on one's purpose, and it is in no one's intuitive interest to protect (preserve and conserve) them or use them sustainably. Based on the CPR lens, privately owned natural resources are generally conserved compared to publicly owned ones (Ostrom, 1990). Within this stand view, economists investigated the effects of ownership rights on exploitation rates. They concurred that private ownership of natural resources has vast benefits like structured systems to conserve the resources while ensuring efficient use, reducing transactional costs and overcapitalisation (Ostrom, 2007; Ostrom & Nagendra, 2007). Therefore, trade-off externalities depend on the extent of a sense of ownership, access, and control. However, there are also other factors like effects of interactions of the people and the resources like human-wildlife co-existence conflicts, indigeneity issues from displacements and exclusion of local/indigenous knowledge systems (community intelligence included), livelihoods against hunger and poverty and effects of climate change that are intriguing in some contexts of residents. These factors make them feel and behave in ways that show conviction that it is more 'rational' for users to overexploit natural resources than conserve them (Ostrom, 2009; Scott, 1993).

Hawkshaw et al. (2012) interpreted the 'catastrophe of the commons' by Hardin in 1968 as furthering the opinion that the users of natural resources are caught up in a process that leads to the destruction and degradation of the natural assets upon which they (the ordinary people) and their development depend. In this context, despite those indigenous knowledge systems nurtured by the traditional leadership as the custodian of shared-natural resources, the natural resources (assets) are not individually managed or controlled. Therefore, the ability, strategies, and approaches to manage and regulate them, including human behaviours, become a consistent challenge in practice. The above viewpoint has been debated by other scholars. They regard the inclusion of locals (community members) as conservation agents through their existing 'common-property resource management' strategies like indigenous knowledge systems. In this sense, the local people have restricted access to natural resources by invoking certain sanctions and procedural rules for their sustainable use (Berkes, 1989; Feeny et al., 1990; Ostrom et al., 1990; Pinkerton, 1992, 1989). Consequentially, the CPR lens is ideal for exploring the extant literature as a basis to critique and scope for further research endeavours and discussion concerning conservation-based tourism development, climate change, the inclusion of locals, and the post-human-wildlife co-existence conflicts.

Findings and Discussion

Maps and Cartographic Illustrations

The present chapter presents maps and cartographic illustrations on territorial changes in line with local societies' territorial boundaries, activities, cultures and learnt behaviours, and responses to environmental changes (climatic changes and biodiversity composition included) as shown in Fig. 10.2.

Natural Biodiversity Spatial Distribution

Based on Fig. 10.2, the GNP is located in natural region five of Zimbabwe, with characteristics of very dry with meagre agricultural potential and has ten classes of land cover that include grassland, dense and sparse shrubs, dense and sparse vegetation, woodland, agricultural area, bare land, built-up area and water (Dunham & Van der Westhuizen, 2016; Ntuli & Muchapondwa, 2018). Thus, the vegetation in GNP is typical semi-arid savanna, dominated by *Colophospermum mopane* woodlands (Gandiwa & Kativu, 2009; Ntuli & Muchapondwa, 2018, see also Map 10.3).

Several vegetation studies have been carried out for the GNP (Gandiwa et al., 2011, 2012; O'Connor & Campbell, 1986; Tafangenyasha, 1997, 2001; Wild, 1955; Zisadza-Gandiwa et al., 2013), and their focus was only on specific areas or species. Only one study produced a comprehensive vegetation map describing 15 vegetation types (Sherry, 1970). However, it was primarily based on work carried out in 1959–1960 concerning tsetse fly control operations (Farrell, 1968). Martini et al. (2016) provides a comprehensive woody vegetation survey of the GNP to analyse the relationships between vegetation types and environmental factors and to produce a map of potential natural vegetation (see also Map 10.2). Martini et al. (2016) identified fourteen vegetation types under three main physiognomies: mopane, miombo, and alluvial woodlands. However, in all these studies, the impact of climatic change, post-human-wildlife co-existence conflicts, the inclusion of locals, and conservation-based tourism interactions have not been included. Nevertheless, they must be included in evaluating the main threats to the vegetation types. Incorporating them would add value in developing appropriate conservation and management measures and monitoring landscape changes within the framework of the conservancy area (Fig. 10.3).

Musakwa et al., (2020a, 2020b) attributed the transformation of land cover in GNP between 2007 and 2017 to Government policy, the Fast Track Land Reform Program (FTLRP) in Zimbabwe, that led to the conversion of forests and grasslands to crop fields. The assertion is confirmed by the land cover maps that show an increase in agricultural land, bare land, and built-up areas driven by agriculture, settlement increase, and soil erosion, resulting in the consumption of pristine forests and grasslands (Musakwa et al., 2020a, 2020b). The continued expansion of agriculture and

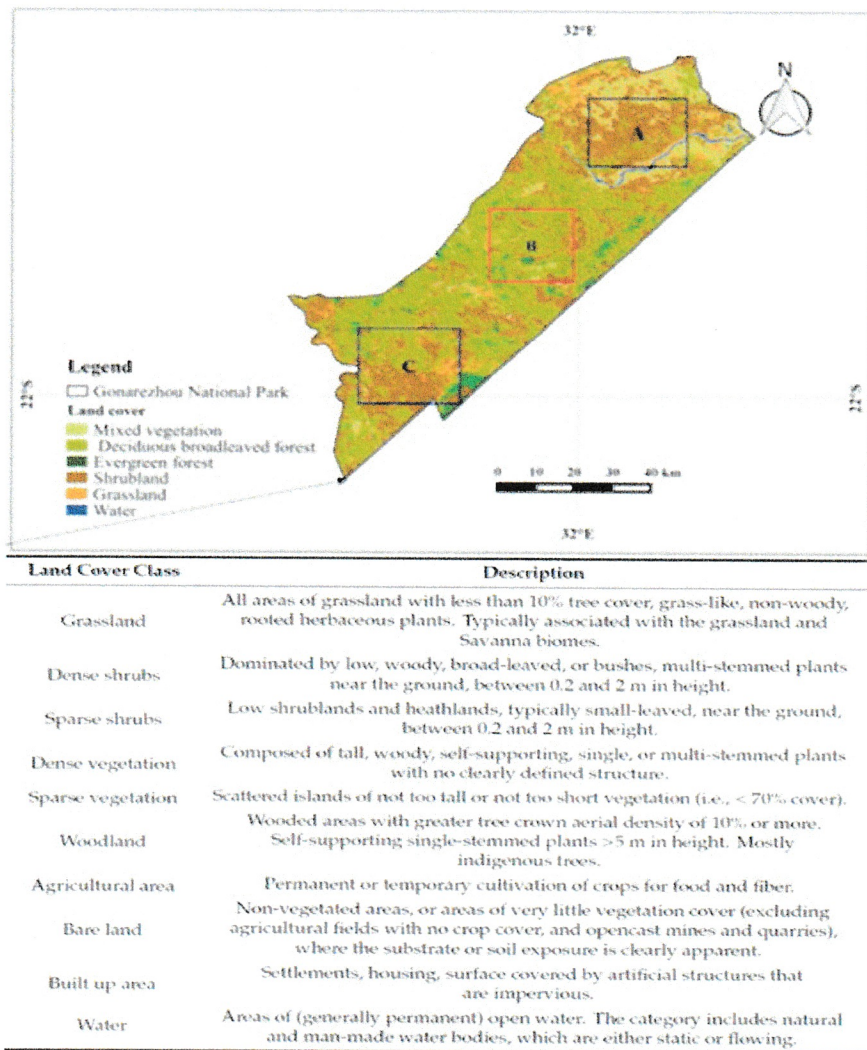


Fig. 10.2 Location of GNP in Zimbabwe and land cover description (Murwendo et al., 2023, p. 300)

settlements at the expense of other land cover classes posed a threat to conservation reports of the Gonarezhou Conservation Trust (Musakwa et al., 2020a, 2020b). Agriculture and built-up areas gained from sparse shrubs, bare land, and grasslands (Musakwa et al., 2020a, 2020b). The positive transformation of dense shrubs was encouraging from a conservation perspective, suggesting the conservation reports of the GCT were starting to bear fruit (Musakwa et al., 2020a, 2020b). Woodland remaining the same may also mean that conservation reports led to less destruction

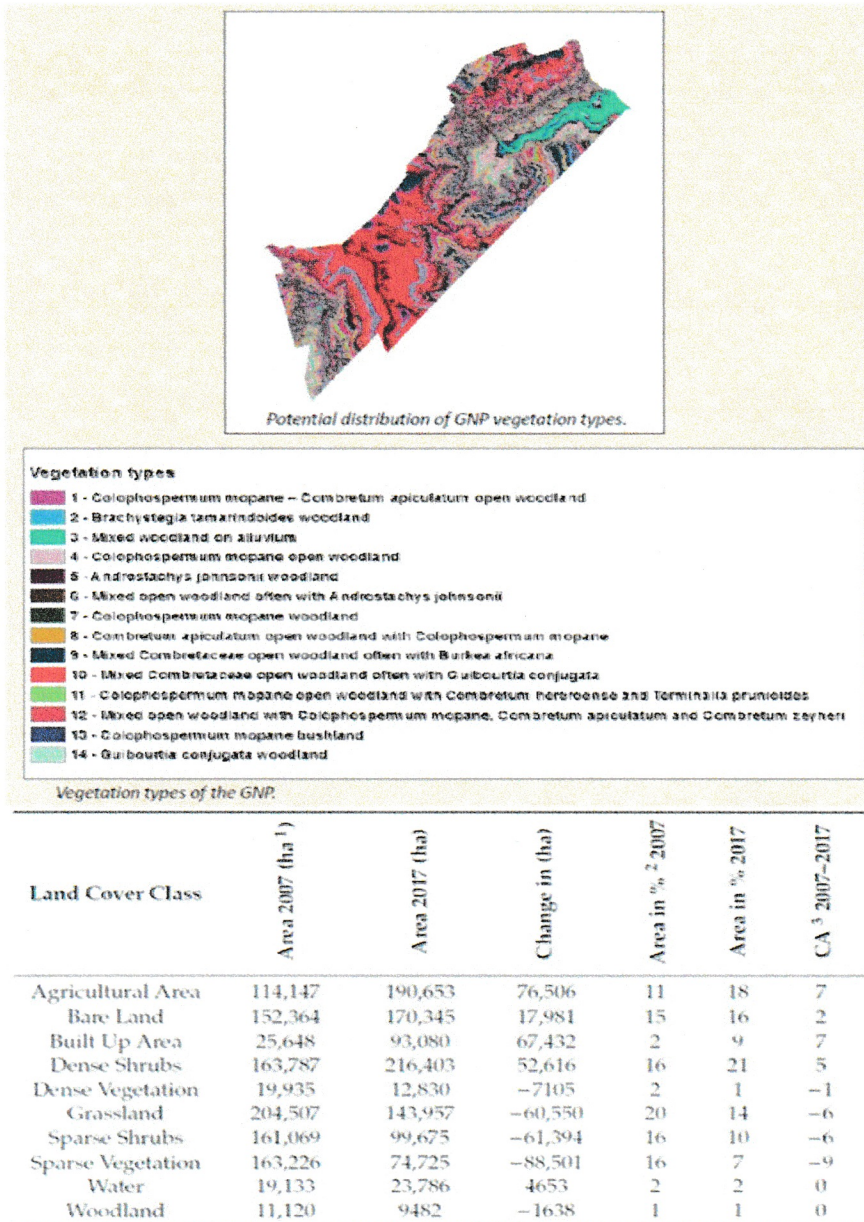
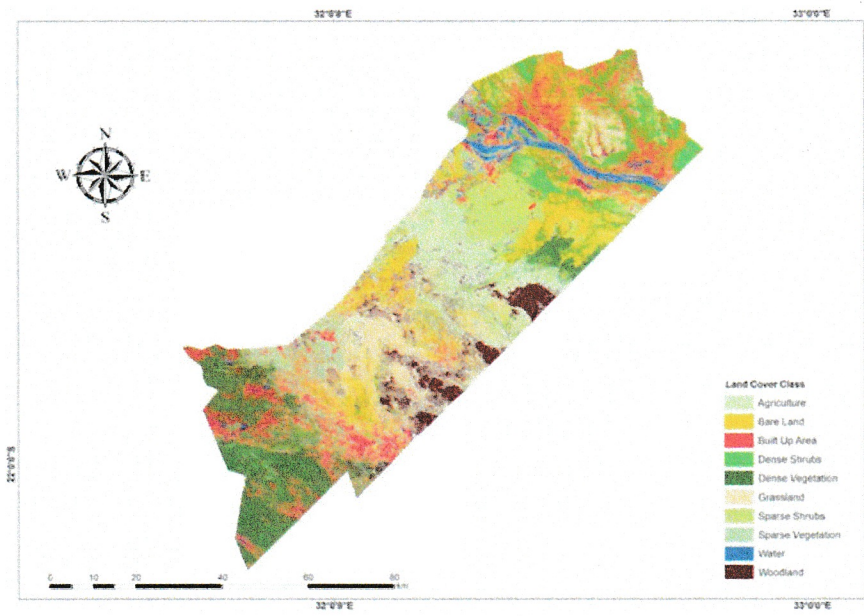
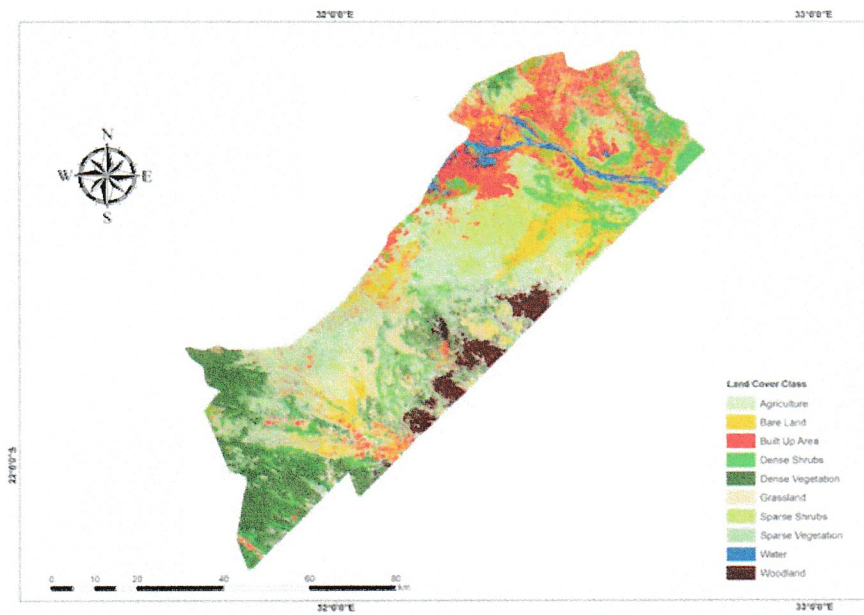


Fig. 10.3 Vegetation distribution as postulated by Martini et al. (2016) and the landscape changes from 2007 to 2017 (Musakwa et al., 2020a, 2020b, p. 9)



Map 10.2 Land cover for GNP in 2007 (Musakwa et al., 2020a, 2020b, p. 9)



Map 10.3 Land cover in GNP in 2017 (Musakwa et al., 2020a, 2020b, p. 9)

of forests (Musakwa et al., 2020a, 2020b). The remote sensing analysis of landscape change is crucial in showing the magnitude of change, but it does not explain the drivers of change (Musakwa et al., 2020a, 2020b). Therefore, combining landscape change using remote sensing with other methods, such as interviews, and surveys. The researcher postulates that participatory research or citizen science is essential to comprehend the drivers of changes fully.

Socio-economic Environment

GNP is surrounded by various tribal groups with diverse cultures and ceremonial rituals, values, and norms that uphold sacred places and nature (biodiversity included) located in GNP (Musakwa et al., 2020a, 2020b; Ntuli & Muchapondwa, 2018). Communities are sparsely populated and predominantly occupied by the Shangani, Venda, Ndau, Ndebele, and Kalanga people (Ntuli & Muchapondwa, 2018). The creation of GNP forced the migration of tribal groups as they paved the way for the park; however, this came with denying them access to their sacred cultural sites (Musakwa et al., 2020a, 2020b; Ntuli & Muchapondwa, 2018; see also Map 10.1 and 10.4).

The area under study is approximately 100 km from the nearest town, Chiredzi (see Map 10.4). Due to its proximity to the South African border and lack of employment opportunities, most school children hardly proceed beyond the primary level of education (Ntuli & Muchapondwa, 2018). Although peasant farmers in the area engage in a diversified portfolio of economic activities, including wildlife conservation, the most dominant livelihood activities are livestock production and drought-tolerant crop cultivation, like sorghum, millet, groundnuts, and cotton (Ntuli & Muchapondwa, 2018). The mode of production is primarily subsistence in nature, and out of the 30 communities under study, 25 were CAMPFIRE projects, while the remainder were resettlement schemes, with less than 1% of the communities involved in wildlife conservation (Ntuli & Muchapondwa, 2018; see also Map 10.4). Resettlement schemes differ from communal areas in that land tenure is governed by a lease agreement under the former, while the latter have communal tenure (Ntuli & Muchapondwa, 2018).

Human-Wildlife Co-existence Conflict

Despite a growing acknowledgement of the need for human-biodiversity co-existence in shared landscapes outside of protected areas, there is limited consensus on how this can be achieved (Merz et al., 2023; Pooley, 2021; Pooley et al., 2021). Co-existence is feasible when sustainable populations of humans and wildlife develop appropriate adaptations that enable them to live together in an integrated human and natural

Most human-wildlife conflict and co-existence literature focus on the direct economic costs, such as livestock losses, crop raiding, and benefits like jobs and income generation as the primary drivers of human-wildlife co-existence (Aiyadurai, 2016; Madden & McQuinn, 2014; Van Schendel, 2022). Indirect costs, like the societies' emotional domain, are left unattended even from a research angle. The importance of the perceived legitimacy of institutions governing natural resources for the sustainability of common pool resources is well-documented (Murphree, 2009; Ostrom, 2009). However, there is a need for research that focuses on the post-human-wildlife co-existence conflict experiences, climate change, and inclusion of locals within conservation-based tourism development as a joint field that has intersectional and symbiotic linkage with human well-being and conservation of biodiversity.

The first author (TM), who spent his childhood (6 years-18 years) as a member of the Mahenye community, visited some relatives in March-December 2020. Based on an ethnographic lens, the TM has lived within the society and researched it is people and culture through a process of sustainable observations and participation. Exploratory interviews aimed at ascertaining the existence of the gap reflected sentiments and anecdotal evidence from residents in Mahenye and Chizvirizvi. The residents alluded that community reactions to wildlife conservation are, to some extent, caused by unattended emotional and societal scars from unfulfilled vengeance and bitterness towards wildlife (biodiversity) among human-wildlife co-existence survivors/victims and their support structure (social capital). The above-mentioned situation is worsened by the wildlife preservation and conservation policies, practices, programmes/initiatives, and interventions that overlook the human survivor/victim's post-human-wildlife conflict experiences and life in society. The post-human-wildlife co-existence conflicts experiences (post-event trauma recovery mechanism and processes) in a household or individual are critical sources of negative attitudes, perceptions, and behaviours against biodiversity. These experiences cultivate a negative attitude towards wildlife within the societal conscience and sub-conscience, which manifests whenever circumstances allow, regardless of initiatives to promote tourism-wildlife preservation, conservation, protection, and community development.

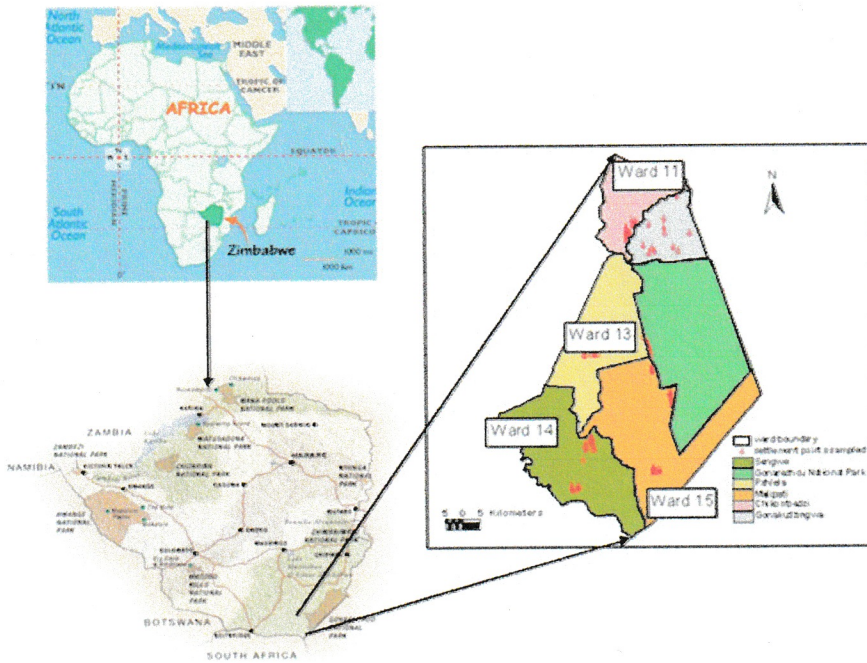
As a Ndaui myself (TM), the Ndaui and Tshonga societal culture upholds a secretive social fabric in terms of sharing their feelings; the societies do not quickly open up to strangers, especially concerning personal heart-breaking issues and experiences. They regard opening up to strangers as a sign of weakness as a translation from Ndaui sayings like (i) 'chidembo hachivhiyirwi pane anhu' and (ii) 'hauvhuri hapwa kunemutorwa' meaning one should not disclose personal hurts or show any weaknesses of the family and society. Therefore, based on such feedback obtained by the first author from his relatives, he and the co-authors explored extant literature. Six societal domains that may be a stronghold of unattended scars were identified as emerging from: (i) the negative societal image of the victim and the victim's family in context of sociocultural socialisation (e.g. when a person is attacked by animals like baboons, it a sign of bad luck among other African superstitions, myths, beliefs, and values); (ii) limited, if not lack of access to medical care after the incident; (iii)

limited, if not lack of compensatory facilities for the human victims; (iv) transformation on household economic sustenance (economic livelihood) of the family and the victims after the encounter especially when the bread-winners are the victims; (v) prevalence of community (societal trauma), family members (relatives included) and the human survivors/victims of human-wildlife conflicts who will be traumatised by the encounter; and (vi) the community's ignorance about integrated (modern) wildlife conservation knowledge with cultural-oral tribal understanding buried in the community common knowledge/'common sense' and passed through generations by oral tradition. Such includes the hunting and gathering culture that defines manhood. All these unattended domains might seem 'normal'; however, they have a bearing on societal attitudes, perceptions, and behavioural patterns. When triggered by other factors, these compromise the wildlife's socio-economic values in the context of conservation, preservation, stewardship, and community/nature-based tourism development. Unfortunately, the said domains are scarcely found in people-parks literature and are not addressed by the Wildlife Act/policies and practices in Zimbabwe, among other African states.

Within the human-wildlife co-existence conflicts context, subsistence poaching is a threat to biodiversity conservation-based tourism, yet it is a form of livelihood to marginalised communities (Ntuli et al., 2021). Ntuli et al. (2021) found that subsistence poaching incidences in communities with previous hunting habits are prevalent in areas with more young men, plenty of wildlife, and experiencing wildlife conflict. However, Ntuli et al. (2021) found less poaching in communities where local people trust each other, respect institutions, perceive that the park management is good, and view wildlife as an asset. The extant literature shows a missing link between human-wildlife co-existence conflicts, the inclusion of locals, and livelihoods as induced by the effects of climate change from a behavioural understanding of individual and community-level factors (social capital). This is because of the lack of data and the literature's predominant focus on commercial poaching (Ntuli et al., 2021).

Territorial Boundaries

Mombeshora and Le Bel (2009) believe the expansion of the network of national parks into conservancy areas has enabled the conservation of biodiversity and habitats. However, the acquisition of vast areas into the park system has often been achieved through the displacement of local communities. Displaced people are exposed to various impoverishment risks resulting in the strengthening of hostility towards parks (Musakwa et al., 2020a, 2020b). The research reported here seeks to understand the critical issues involved in the occupation of a section of GNP by Headman Chitsa's people (Mombeshora & Le Bel, 2009). Mombeshora and Le Bel (2009) examined how the relationship between the history of displacement and dispossession, demographic pressures, limited economic opportunities, the 'fast track' land reform programme, and dynastic politics are stimulating the land conflict between Gonarezhou and Chitsa community. Mombeshora and Le Bel (2009) noted



Map 10.5 Communal boundaries post-1975 when GNP was created (<https://www.ecologyandsociety.org/vol16/iss4/art8/figure1.html>)

that secondary actors with diverse interests have come into the picture, while official efforts to resolve the conflict using a top-down approach have yielded little success (see also Musakwa et al., 2020a, 2020b). Hence, the need to use traditional mechanisms to resolve a chieftaincy dispute that implicates the wide-ranging parks-people land conflict was exposed. The latter assertion lays the foundation for this chapter while upholding lessons practical to local culture, livelihood needs, and power dynamics to the extent possible, eschewing forcible relocations. Interestingly, Mombeshora and Le Bel (2009) found consistency and broader contradiction between policies promoting wildlife conservation and those promoting agriculture to guide stakeholders in parks-people conflicts post-expansion of game reserve into GNP (1975) (see Map 10.5).

COVID-19 Pandemic and Lockdown Measures

The COVID-19 pandemic and lockdown measures propelled illegal hunting of wildlife and over-harvest of herbs and wood (Merz et al., 2023). However, these issues have been prevalent even before the health crisis due to various reasons, including changes in the weather pattern. Despite the challenges induced by climate

change, the community in the dry savannah region of the south-eastern lowveld must survive (Merz et al., 2023). Human-wildlife co-existence conflicts exist whenever there is shared space between wildlife-protected areas and surrounding communities in Africa (Merz et al., 2023). The present chapter applauds the Communal Areas Management Programme for Indigenous (CAMPFIRE), among other CBNRM initiatives, as robust wildlife preservation and conservation community-engaged models.

Prior to COVID-19, and amidst of successful pursuit of CAMPFIRE, a handful of policy and practice gaps were highlighted by Giampiccoli and Saayman (2016, 2018) and Giampiccoli et al. (2014). However, their assertions focused on pro-poor tourism and the inclusion of locals as part of responsible tourism (Saayman & Giampiccoli, 2016). All the approaches mentioned above and models, among other discourses on wildlife-community-related tourism development, focus on the reconciliation and harmonious co-existence of societies around demarcated biodiversity habitation and wildlife species. However, the reconciliation excludes the locals in the context of their power structures and dynamics among the Tshonga, and Nda, among other tribal groups. These societies are composed of static (influenced by traditional/tribal ways of living with wildlife) and dynamic (influenced by the internationalisation of wildlife-community developmental approaches) cultural phenomena.

Nevertheless, wildlife is of socioeconomic value to urban and rural communities (Merwe et al., 2014; Van der Merwe & Saayman, 2005). These scenarios permeate human-wildlife conflicts and consistently compromise the survival and livelihood of people. Masse (2016) questioned the wildlife and people's power and authority to manage because the cohesion and empathy within social capital in the societies around GNP are higher than in urban counterparts.

Post-Wildlife-Human Co-existence Conflicts and Conservation-Based Tourism Development

Hemson (2004) and Hemson et al. (2009) opined that each area has its own economic, ecological, political, and sociological profile that may ultimately determine the potential for mitigations to succeed. Karidozo et al. (2016) were commissioned to assess mitigating human-wildlife co-existing conflicts in GNP. They found: (i) a lack of capacity to mitigate all prevalent conflicts; (ii) the mitigating methods are not sustainable as they lack efficacy, cost-effectiveness and need to address the context of the societies; (iii) insurance-based approaches are regarded as the ideal; (iv) solutions are provided if the aim is to address the root cause of human-wildlife co-existing conflicts and pay attention to people rather than wildlife only.

In addition, conferences were held in Southern Africa, such as the one held in the Boli community close to GNP in 2019. The aim was to find scholarly and practical sustainable ways to alleviate human-wildlife co-existence conflicts while upholding sustainable livelihoods. In the past few decades, human victims have been given

attention through hospitalisation only in post-human-wildlife conflicts. In contrast, animal victims get attention through physical and emotional resuscitation facilities and care from vast facets like sanctuaries, and orphanages, to mention a few. In these facilities, animals would get proper recovery from trauma for life sustenance, and human victims/survivors and their households are left to find their ways to recover from the trauma and physical and emotional wounds.

Stoldt et al. (2019) opined that the most common problems caused by wildlife were crop damage (87.9%) and livestock predation (69.7%). Loss of human life (18.2%) and damage to households (9.1%) were less frequent than crop damage and livestock predation. The locals experienced human-wildlife co-existence conflicts a few times yearly (59.1%). Within this context, Ntuli et al., (2019a, 2019b) researched drivers for subsistent poaching to ascertain what matters in community-wildlife conservation in Great Limpopo Transfrontier Conservancy Area. Their findings indicated no evidence of the role of education, employment, and livestock ownership in poaching. However, factors such as age, gender, trust, group size, local institutions, resource quality, and perceptions about park management influenced subsistence poaching. Ntuli et al., (2019a, 2019b) suggested a need for capacity building in local institutions, training related to wildlife management, and public awareness campaigns that policymakers could use to influence people's perceptions and behaviours in this context.

The societies around the GNP are composed of the human victims and survivors of human-wildlife co-existence conflicts, who bear unattended scars embodied in their physical being and psycho-social and emotional quotient (Thondlana et al., 2020). These scars might have infested the societal conscious and subconscious network. This would imply that the social capital comprises a network of households who share bitterness from past incidents and hurts suffered by individuals or households. This perpetuates societally justified wildlife killing or subsistence poaching, regardless of the efforts of CBNRM initiatives. Hence, such actions may impede the effectiveness and efficiency of community-based wildlife conservation and preservation initiatives and tourism development around wildlife-protected areas.

Climate Change, Weather Patterns, and Inclusion of Locals

It is observable that the mean annual rainfall in the area of GNP is around 499 mm, with a standard deviation of about 195 mm (Musakwa et al., 2020a, 2020b; Ntuli & Muchapondwa, 2018). The average maximum monthly temperature ranges from less than 25.9 °C in winter to over 36 °C in summer, while the average monthly minimum ranges from 9 °C to 24 °C in winter and summer, respectively (Gandiwa, 2011; Musakwa et al., 2020a, 2020b; Ntuli & Muchapondwa, 2018). The climate variability and weather changes worsen the erratic rainfall and high temperatures resulting in consistent droughts that lead to a decline in crop harvest, loss of livestock, loss of vegetation, and drying of water bodies (Musakwa et al., 2020a, 2020b; see also Fig. 10.4, 10.5 and 10.6).

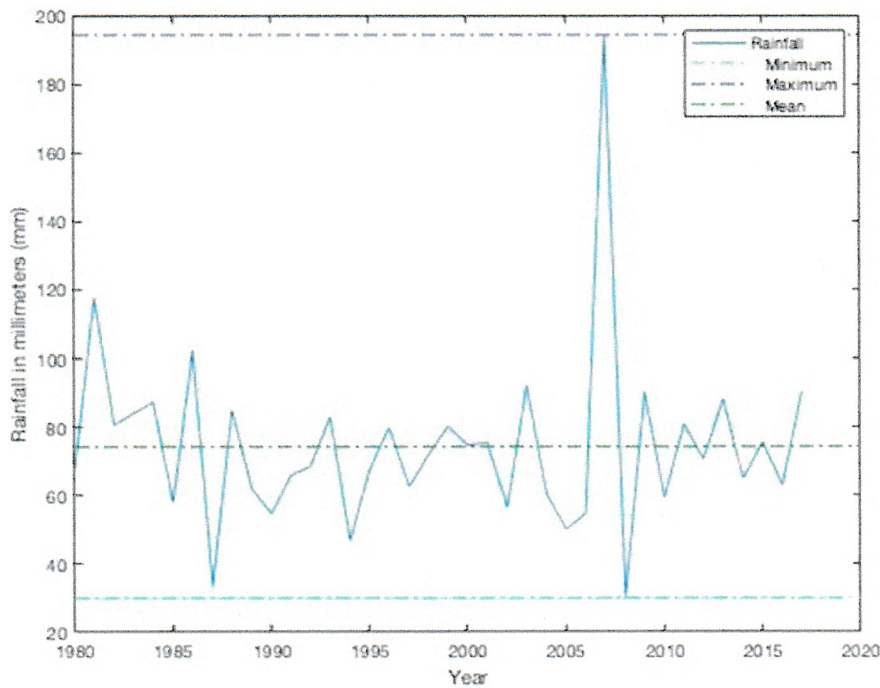


Fig. 10.4 Rainfall

Climate variability in Gonarezhou from 1980 to 2017, Fig. 10.4-rainfall, Fig. 10.5-maximum temperature, and Fig. 10.6-minimum temperature adopted from Musakwa et al. (2020a, 2020b, p. 11).

Based on Figs. 10.4, 10.5, and 10.6, droughts result in local communities turning to subsistence poaching of small game or harvesting natural resources for survival (Musakwa et al., 2020a, 2020b). Thus, droughts have influenced deagrarianisation and food security decline (Musakwa et al., 2020a, 2020b). Hence, as indicated in Figs. 10.4, 10.5, and 10.6, low rainfall and high temperatures threaten the lives of wildlife in GNP because they depend on natural water sources (Musakwa et al., 2020a, 2020b).

Figures 10.7 and 10.8 present findings from Musakwa et al., (2020a, 2020b), which show the results of climate change indicated by increased natural disasters. They indicate cyclones and droughts as the most prevalent disasters around GNP (Musakwa et al., 2020a, 2020b). Research suggests that most droughts experienced are induced by El Niño weather conditions and were witnessed in the 1990s, 2004–2005, and 2015–2016 (Fitchett & Grab, 2014; Musakwa et al., 2020a, 2020b). Hence, communities are encouraged to destock their livestock to reduce losses and to plant drought-resistant crops like sorghum and millet. In addition, Cyclone Leon-Eline in 2000 (Fitchett & Grab, 2014; Musakwa et al., 2020a, 2020b) was the most destructive due to higher volumes of loss of life and destruction of infrastructure, including the

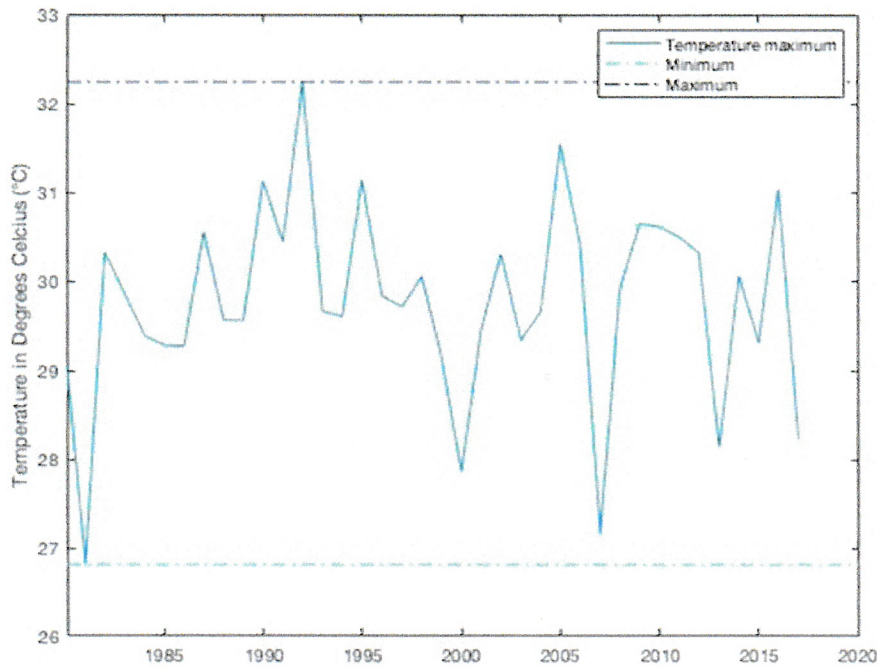


Fig. 10.5 Maximum temperatures

bridge on the Runde River, which connects north and south Gonarezhou. Wildfires occasionally happen, but they have had little to no impact due to conservational efforts like fireguards and rapid response from the Gonarezhou Conservation Trust (Mpofu & Nyathi, 2020; Mpofu et al., 2012).

Conclusion and Contributions

It is worth noting that animal distribution and volumes were excluded from the discussion as the chapter took a blanketing lens to avoid triggering the poaching of certain species. However, trends and patterns in conservation-based tourism development, climate change, the inclusion of locals, and post-human-wildlife co-existence conflicts around GNP were unveiled by the analysis of extant literature. Thereby alluding to the stimuli underlying the attitudes, perceptions and behaviours among individuals and households involved in human-wildlife co-existence conflicts towards conservation-based-tourism development. The chapter also highlights coping mechanisms for livelihoods amidst climate change impacts and the extent of their inclusion in conservation-based tourism. It summarised and illustrated relationships by postulating a post-human-wildlife conflict human behavioural lens to augment societal healing through initiatives that aim to bring interventions

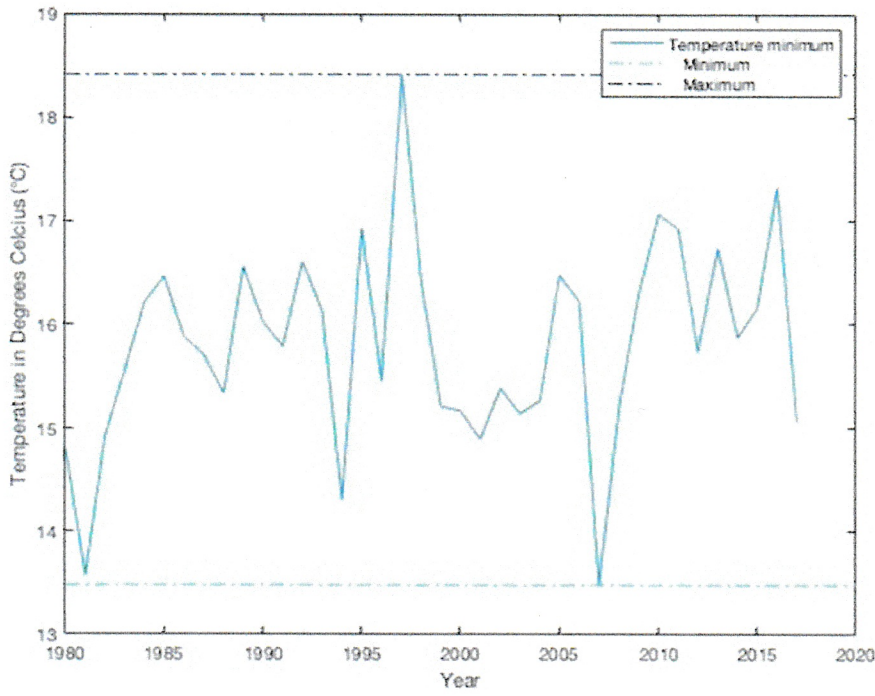


Fig. 10.6 Minimum temperatures

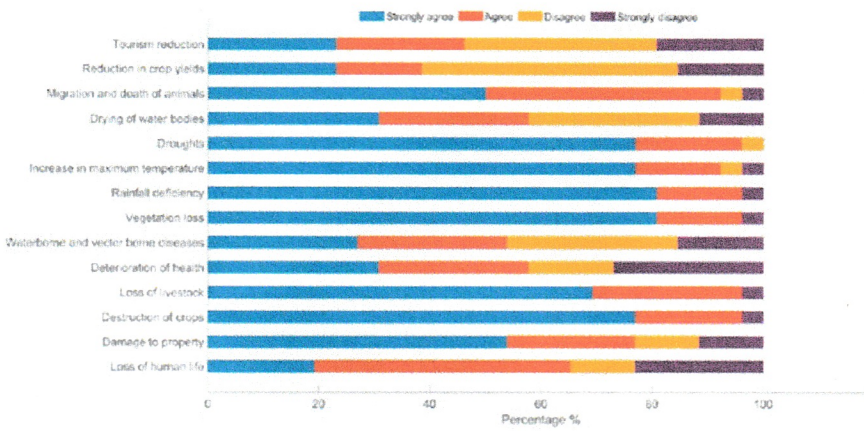


Fig. 10.7 Perceived impacts of climate change (Musakwa et al., 2020a, 2020b, p. 13)

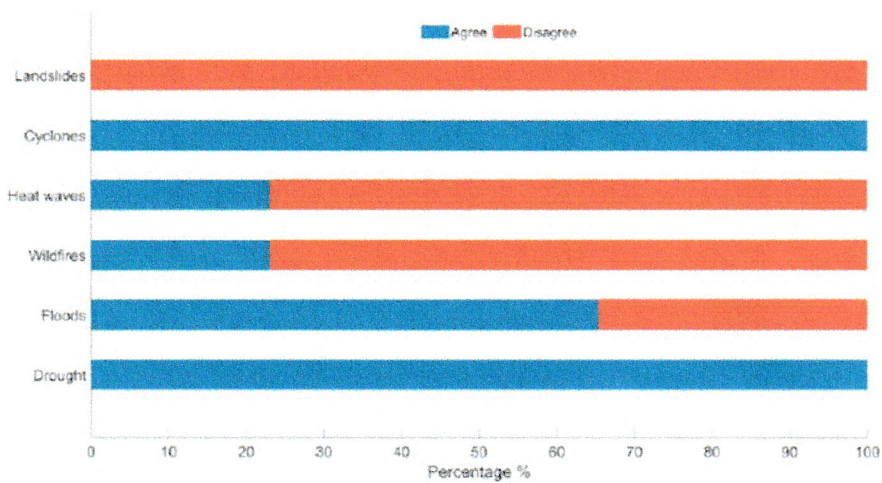


Fig. 10.8 Perceived association between climate change and natural catastrophes (Musakwa et al., p. 13)

on impacts of climate change, human-wildlife co-existence conflicts, the inclusion of locals into conservation-based tourism development in GNP.

The chapter contributes by showing a knowledge gap for further investigation to incorporate conservation, tourism, the inclusion of locals, effects of climate change and post-human-wildlife co-existence conflicts interventions in the suggested model (Fig. 10.9). The model also provides insights into new ways of thinking and dimension within the research agenda for the research community to consider in parks-people relationships.

In addition, the chapter contributes insights on evaluating parks-people from impacts that go beyond the amounts of financial resources spent and quantifiable infrastructures/superstructures as critical measures. Such a traditional matrix ended up overshadowing/understating the non-quantifiable impacts (indicators), which would have informed the indication of the existence of socioeconomic problems caused by human-wildlife toxic interactions in the societies around the Trans frontier Conservancy Areas (TFCAs). Therefore, this chapter informs gaps and, at the same time, can be positioned to:

- (i) inform policymakers and management/leadership of the organisations (public and private) concerned about wildlife, tourism, and communities around protected areas on the aspects they can incorporate in their policies, strategies and implementation of CBNRM initiatives;
- (ii) give insights towards addressing the community's (individuals and households) psycho-emotional healing process that supports the betterment of social capital towards reducing toxic behavioural patterns (see Fig. 10.9);

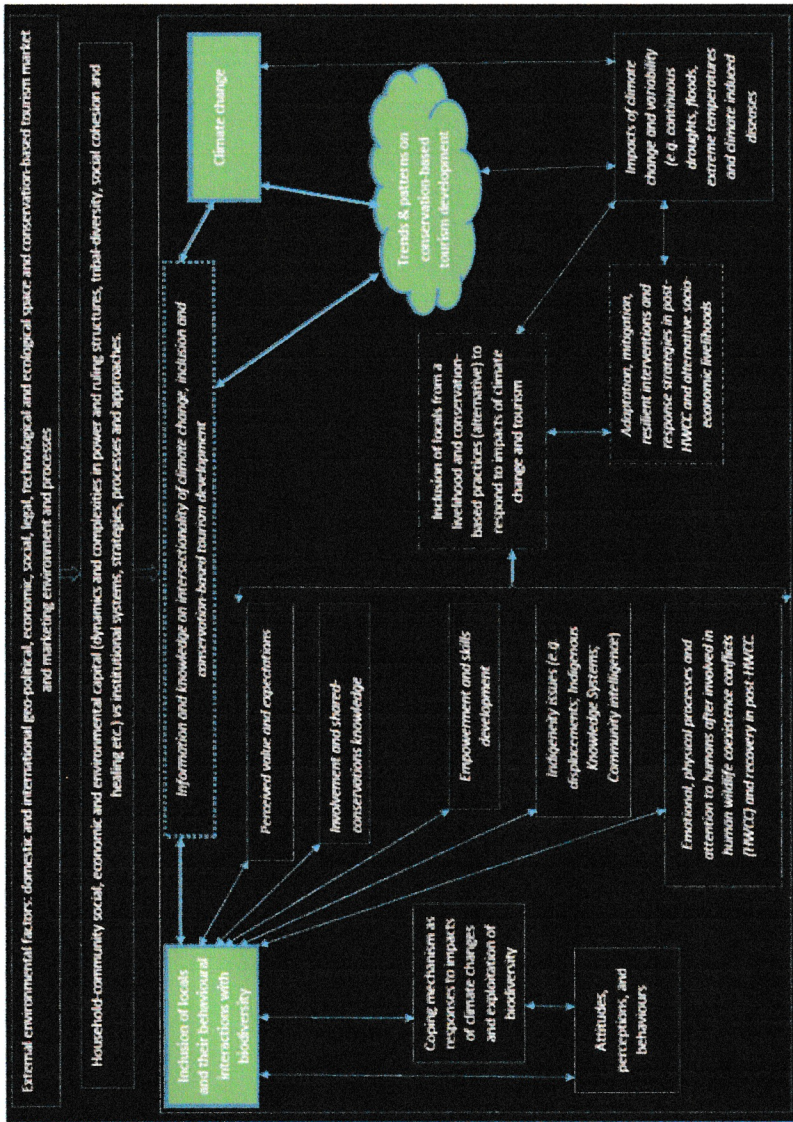


Fig. 10.9 Proposed a conceptual human-behavioural model for conservation-based tourism, the inclusion of locals, post-human wildlife co-existence conflicts, and climate change

- (iii) provide insights on the need to incorporate citizen science for co-creating knowledge that adds and complements the existing sustainable community-based wildlife and tourism (CBNRM) knowledge and practice among stakeholders actively involved in wildlife and conservation-based tourism development;
- (iv) scope literature and suggest a conceptual, behavioural model that can contribute towards addressing local community members' attitudes and behavioural patterns as a foundation that complements efforts in planning and implementing CBNRM initiatives/programmes/activities like CAMPFIRE, among other conservation-based tourism initiatives. Such a model can be relevant for developing means to handle post-human wildlife co-existence conflicts and climate change while upholding alternative means of livelihood through socioeconomic participation, involvement and empowerment of the locals (see Fig. 10.9).

The model considers macro and micro environmental factors as external factors influencing household and community well-being. However, these macro and micro environmental factors were not necessarily part of the scoping. The said environmental factors, directly and indirectly, influence conservation-based tourism development, including locals, post-human-wildlife co-existence conflicts, and climate change, as indicated in the dotted box and arrow lines. There are three facets (inclusion of locals, trends, and patterns in conservation-based tourism development, and climate change) highlighted in green colour. These fundamental elements have a symbiotic link that influences in dual approach to information and knowledge on intersectionality. Each facet has sub-variables that have a dual linkage; however, the end game flows into conservation-based tourism development.

The results inform the proposal of a conceptual post-human-wildlife co-existence conflict human behavioural model that augments societal healing within social capital from impacts of climate change, human-wildlife co-existence conflicts, and inclusion of locals in conservation-based tourism development in GNP (see Fig. 10.9). In conclusion, Fig. 10.9 is informed by the findings that were interpreted and then informed the proposed framework that is illustrating the linkages of the factors (based on trends and patterns) deduced from the extant literature towards conservation-based tourism development that embeds climate change, post-human wildlife co-existence conflicts, and inclusion of locals. Nonetheless, the study has limitations in that. On the one hand, it only considered secondary data and an ethnographic-based lens on the phenomena understudy, without engaging all stakeholders. On the other hand, the study inclusive of Fig. 10.9 proposes areas for future/further studies and as another layer into climate change, local inclusion, and conservation-based tourism development debate in areas around Transfrontier Conservation Areas in Southern Africa.

Based on the findings, the chapter suggests that the research community to further engage in empirical studies on post-human wildlife co-existence conflicts from a community's behavioural intentions and pro-conversation of wildlife behaviour. In addition, there is a need for further investigation on community-wildlife

conservation-based concern/worry and how community-based knowledge influences their co-existence with wildlife in post-human wildlife conflict(s). Added to that, the research community can bring a Southern and Eastern African perspective on post-human wildlife conflicts because these sub-Saharan regions thrive in wildlife tourism found in protected areas, while there are communities living around the designated wildlife conservation areas.

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