



How the San People of Southern Africa Use Their Indigenous Knowledge for Ecological Sustainability

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Abstract

This chapter argues that different people groups and their respective indigenous/traditional knowledge systems have contributed to maintaining a sustainable ecology in various parts of the world. There is a need to document and incorporate the contributions of such groups into the sustainability debate. This chapter aims to provide an understanding of how the San people (or Khoisan) of southern Africa use their indigenous knowledge for ecological sustainability. Accordingly, the chapter seeks to answer several closely related questions: What is the perception of the San people regarding nature? How do the San people take care of their ecosystems in a sustainable way? Why do the San people believe in preserving their ecology? Answers to these questions are obtained through an extensive literature review of journal articles, government publications, websites, books and other relevant sources. The answers offer insightful alternative perspectives on sustainability that transcend the contemporary Western paradigm, wherein development is commonly conceived as being predicated on the exploitation of nature, made possible by a perceived human separation from nature. This chapter concludes that debates on sustainability should be more inclusive and pluralistic, inviting multiple cultural experts to interact mutually with each other while

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maintaining their distinct perspectives and integrity on matters of sustainable ecology.

Keywords

San people · Sustainability · Ecology · Traditional knowledge · Collectives

1 Introduction: Indigenous Knowledge and Sustainability

The connections between ecological sustainability and indigenous knowledge, including among communities in southern Africa, cannot be overstated. According to Settee (2007), indigenous knowledge allows communities to nurture their environment in a sustainable way. In line with their unique cultural practices and ecological understandings, communities—rather than individuals—can be seen as the true repositories of indigenous knowledge for ecological sustainability. Communities apply their knowledge collectively to maintain a harmonious relationship with their environment (Ellis et al. 2021). Accordingly, scholars have advocated that “local ecological knowledge must be placed at the center of environmental governance” (Mistry and Berardi 2016: 1274).

Indigenous knowledge refers to the unique, localised understandings and practices developed by indigenous communities over generations, often through close interaction with their natural environment (Dawson et al. 2021). This knowledge encompasses practices in agriculture, medicine, and ecological management and is recognised as valuable for sustainable development, conservation, and climate change adaptation (Leal Filho et al. 2021; Mistry and Berardi 2016). Recent initiatives have sought to strengthen the rights of traditional knowledge holders through relevant policies (UNESCO 2018, 2022).

Indigenous knowledge is deeply embedded in culture and varies from one community to another (Dawson et al. 2021; Luetz 2024). These distinctions are evident in the daily practices of communities, which play a key role in decision-making regarding how they interact with environmental factors such as soil, air, and temperature (Dan et al. 2010). How communities apply their indigenous knowledge to ecological matters also influences their long-term survival, particularly in areas like environmental sustainability, food security, and natural resource management (Tom et al. 2019).

Levac et al. (2018) argue that indigenous knowledge is threatened by the predominance of Western knowledge systems. This is because Western knowledge is structured into disciplines that prioritise mathematical and linguistic intelligence as the primary foundations of knowledge production (Levac et al. 2018). In contrast, indigenous knowledge embraces diverse ways of knowing, including interpersonal, kinesthetic, and spiritual insights (Fair 2018; Luetz and Nunn 2023; Luetz 2024). The neglect of indigenous knowledge by Western scholars represents a missed opportunity for original and innovative research, as there are multiple ways of knowing (Fair 2018; Levac et al. 2018). Given its self-declared superiority, Western scholarship has been criticised for being patriarchal, reductive, and/or

condescending in its stance toward indigenous knowledge (Ahenakew 2016; Fernández-Llamazares et al. 2021; Fischer et al. 2022; Levac et al. 2018).

The criticism of Western knowledge arises in part from its dismissive stance toward metaphysical concepts, which indigenous knowledge holders accept as valid sources of knowledge (Levac et al. 2018; Luetz 2026). Western scholars, who typically treat knowledge as an object rather than as a dynamic process involving actions, experiences, and relationships, have faced strong criticism from proponents of indigenous knowledge systems (Ahenakew 2016; Levac et al. 2018). On the other hand, indigenous knowledge scholars face the challenge of advancing indigenous knowledge within intellectual spaces and systems that are dominated by Western paradigms and thought (Magni 2017; Luetz 2026).

Relatedly, the promotion of indigenous knowledge systems remains challenging, as many Western scholars view such knowledge as unsystematic and inadequate for addressing the productivity demands of the so-called 'modern world' (Battiste et al. 2002; Schipper et al. 2021). This perspective mirrors the attitudes of Western colonialists, who dismissed the socio-political and cultural intelligence of people who did not resemble them (Battiste et al. 2002). In contrast, indigenous knowledge is community-centred and context-specific (Agrawal 1995; Dawson et al. 2021). Western knowledge, however, tends to impose universal principles that are then applied to non-Western communities with different knowledge traditions, disregarding their unique contexts, experiences, and perspectives (Battiste et al. 2002; Makondo and Thomas 2018; Schipper et al. 2021).

A key strength of indigenous knowledge lies in its deep connection to the relationship between communities and their environment (Agrawal 1995; Dawson et al. 2021). Indigenous knowledge is place-based in ways that Western knowledge is not. Despite being marginalised by Western knowledge systems, indigenous knowledge has endured because its custodians have developed strategies to deflect the impacts of Western approaches that threaten their ecological sustainability. For instance, many indigenous communities discourage extractive economic activities like deforestation and large-scale mining, which are widely promoted by Western ideologies that prioritise infrastructure development and technocratic solutions to ecological problems as the hallmark of civilisation, regardless of the environmental damage they may cause (Luetz and Nunn 2023; Magni 2017). Since colonial times, there have been numerous conflicts between governments, multinational corporations, and indigenous communities resisting the exploitation of their surrounding ecology—both flora and fauna—for commercial gain (Evans et al. 2002; Ezeudu 2024; Sawyer and Gomez 2012).

Agrawal (1995) argues that the sustainable practices of many communities, informed by their indigenous knowledge in response to changing ecosystems, have gradually prompted the international community to view it as a “remedy for some environmental hazards as a result of the pursuit of development through western knowledge” (Agrawal 1995: 420). Consequently, indigenous knowledge systems have attracted growing attention in areas of ecology, biodiversity, environmental conservation, and the management of land and natural resources, among others (Agrawal 1995, 2002; Dawson et al. 2021; Luetz 2024, 2026). This evolving

appreciation underscores the value of indigenous knowledge, which is rooted in the close-knit relationship between people and their environment. By nurturing this relationship with place, indigenous communities have managed to maintain a sustainable ecology over time by carefully using and managing natural resources, even in the face of challenges underpinned by Western paradigmatic development perspectives and interests (Evans et al. 2002; Magni 2017; Sawyer and Gomez 2012).

A notable example of the harmony between indigenous practices and environmental sustainability can be found in the San people, or so-called ‘Bushmen’, from southern Africa, whose indigenous knowledge has been recognised for safeguarding their ecology in the region and beyond (Suzman 2001). The term San (or Khoisan) applies to many indigenous people groups across southern Africa that use so-called ‘click languages’ (Chaboo et al. 2016). Figure 1 presents an overview of San communities in southern Africa.



Fig. 1 Map indicating the approximate distribution of selected San communities across southern Africa, including !Xun, Ha//om, Jui'hoansi, //Au//eisi, G/ui-G//ana, !Xoo, Khomani, !Xam, Tyua, Qing, and //Xegwi. The map is illustrative and not to scale. (Map created by authors)

Set against this background, this chapter examines how the San people of southern Africa use their indigenous knowledge for ecological sustainability. Accordingly, it aims to answer several associated questions: What is the perception of the San people regarding nature? How do the San people take care of their ecosystems? Why do the San people believe in preserving their ecology? Answers to these questions are obtained through an extensive literature review of secondary data comprising journal articles, government publications, websites, books and other published research. The answers offer insightful perspectives on San sustainability that transcend the Western paradigm, wherein development is commonly conceived as being predicated on the exploitation of nature made possible by a growing human separation from nature (Luetz and Nunn 2023). Our analysis concludes that debates on sustainability should be more inclusive and pluralistic, allowing multiple ethnocultural experts to share their distinct perspectives and contribute meaningfully to an agenda for sustainable ecological conservation.

This chapter is organised as follows. Next, we introduce the San people and some of their ecological practices that demonstrate their proximity to nature. This is followed by an analysis of the historical survival of the San people in a rapidly changing world. Thereafter, we discuss numerous linkages between San lifestyle and environmental sustainability. Finally, a short concluding synthesis recapitulates the main contribution of this chapter to the body of literature.

2 The San People as ‘Original Ecologists’

The San communities of southern Africa are often characterised as ‘hunter-gatherer’ societies. They have been the focus of numerous ethnographic studies, documentaries, films, books, and postcard images (Suzman 2001). Notably, Lewis-Williams and Pearce (2004) have referred to the San people as “the original ecologists” (2004: 227). Conventional thinking continues to view the San primarily as hunter-gatherers, even though Western-centric development has displaced many of them from their natural homelands (Suzman 2001). By the last decade of the twentieth century, only a few San communities still relied on hunting and gathering as their primary means of subsistence (Suzman 2001). This interpretation is supported by Lee and DeVore (1976), who argue that the San people were exclusively hunter-gatherers until the arrival of the Bantu cattle economies approximately 2000 years ago. The arrival of the Bantu cattle trade led a significant portion of the San population to adopt pastoralism (Lee and DeVore 1976).

Suzman (2001) presents a slightly different historical perspective arguing that, after the European colonisation of the Cape in the seventeenth century, many San were forcibly assimilated by both Bantu migrants from the north and east and European settlers from the south. This dual in-migration—of Bantu and white settlers—significantly altered the demographic makeup and distribution of the San people, causing many to be absorbed into the Bantu populations. According to Suzman (2001), by the early twentieth century, the number of San people in southern Africa had diminished considerably. Most of those who remained were

clustered around the Kalahari Basin in Botswana, Namibia, southern Angola, southern Zambia, northwestern Zimbabwe, and parts of South Africa (Fig. 1).

Table 1 reflects the estimated San population in southern Africa by country and information source. According to these estimates, Botswana has the largest population of San people, followed by Namibia, South Africa, Zimbabwe, and Angola, with Zambia having the smallest number (Fig. 2). Historical processes explain the unequal distribution of San people across postcolonial states in southern Africa. Central to this explanation are the postcolonial policies of many southern African countries (Dikgang and Muchapondwa 2016). These policies have disrupted the traditional way of life of the San people, as their lifestyle was often considered to be inferior according to Western knowledge and standards about how humans should relate to the environment (Adhikari 2010; Phiri et al. 2020).

Table 1 Estimated San population in southern Africa by country and information source

Country	Population est.	Most recent source
Angola	1200	Suzman (2001: 5)
Botswana	63,500	Hitchcock and Sapignoli (2019: 170)
Namibia	34,895	Namibia Statistics Agency (2024: 92)
South Africa	4350	Suzman (2001: 5)
Zambia	300	Suzman (2001: 5)
Zimbabwe	3207	IWGIA (2024: 146)
Total approx	107,452	NB: see notes in references

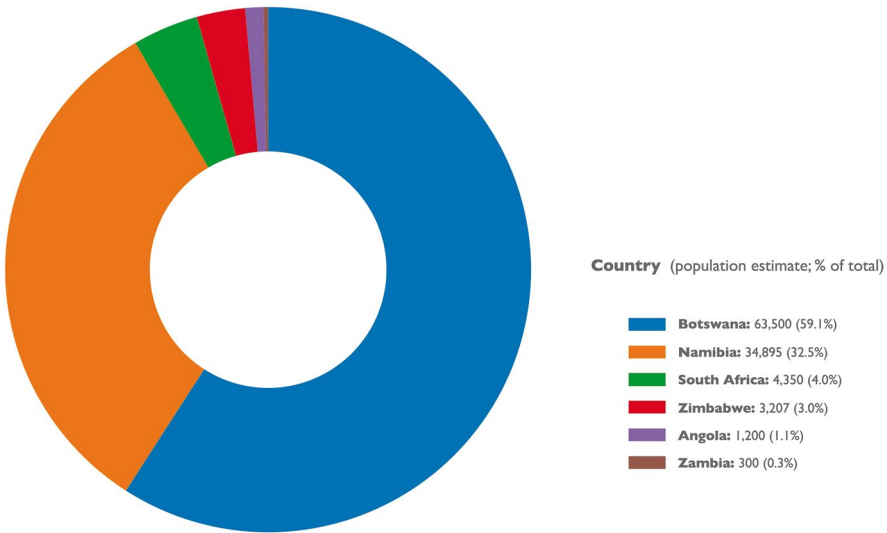


Fig. 2 Estimated distribution of the San population across southern Africa by country (figure by authors)

For example, the traditional attire of the San people has been characterised as ‘nearly naked’ (Jolly 2005) or ‘wild’ and ‘uncivilised’ (Montón-Subías and Moral de Eusebio 2021). Such perceptions persist because San clothing does not conform to Western standards of apparel, which, as far back as the seventeenth century, have been used to label some dress codes as ‘uncivilised’ (Montón-Subías and Moral de Eusebio 2021). Yet, such critiques overlook the positive impacts of San lifestyles on environmental sustainability, wherein their customary dress code avoids contributing to the kind of environmental damage that may arise from large-scale cotton farming for clothing production or extensive leather tanning from animal skins.

Among the San, nature is viewed as inseparable from humanity. As such, it is nurtured and even revered. The importance of nature is reflected both directly and indirectly in the folklore of the San people. The connection between the San and the natural world is rooted in their belief systems. For instance, according to the G/ui San people of the Central Kalahari, God (*N!adima*) is the giver of life. The intricate relationship among all of God’s creations includes wild animals, plants, insects, and people. Humans are not permitted to take more from nature than they need. For example, when harvesting certain wild plants, the G/ui believe that some fruits should be left in the ground to continue growing. This practice is part of the indigenous knowledge that guides their interaction with nature. This wisdom passed down through generations, comes from the *g//onkhwena* (forefathers and foremothers, or ancestors).¹

Most San people living across southern Africa today face the challenge of adapting to a world increasingly dominated by Western ideologies (Suzman 2001). This is taking place at a time when San communities across southern Africa lack *de jure* rights to land and remain without the skills necessary to compete in a rapidly evolving local and global political economy (Suzman 2001). Their deprivation of access to nature (land) is further compounded by the discrimination they face, including prejudicial treatment by other groups and government officials in the region (Suzman 2001). Negative stereotypes, which portray their way of life as primitive, have far-reaching consequences (Sylvain 2014).

The presumed notion of San ‘primitivity’ has exposed them to marginalisation across southern Africa. Marginalisation continues to prevent the San people from accessing essential social services, such as healthcare and education. This is due to their lack of political power and the lack of political will among postcolonial leaders, who perpetuate the misconception that the San people are backward (Woodburn 1997). Hitchcock and Holm (1993) have described the marginalisation of the San as being underpinned by bureaucracy. Bureaucratic systems have caused the San to remain the only group in southern Africa whose health status has worsened since the independence of many countries in the region (Sylvain 2014). They continue to experience high rates of child and maternal mortality, as well as elevated levels of

¹Robert K. Hitchcock gives numerous examples of how nature is appreciated and respected among the San Bushmen of southern Africa: <https://www.conservationfrontlines.org/2020/10/the-san-of-southern-africa-among-the-bushmen-nature-is-appreciated-respected-honored-and-revered/>

malnutrition, which increases their risk of tuberculosis (TB) and can lead to complications in recovery and higher mortality rates in the postcolonial era (Hitchcock 2017).

In their natural environment, the San had a practice of observing and gathering knowledge about their surroundings, which contributed to ecological preservation. For example, the G/ui people possess knowledge about animals, plants, and landscapes that enables them to locate water sources at specific times of the year without the need for irrigation (Hitchcock 2017). Depriving them of access to their natural ecology places them in a difficult position, forcing them to compete with groups that exploit such resources for profit. As a result, the San are compelled to struggle for survival while at the same time facing persistent challenges of marginalisation (Hitchcock 2017).

3 The Survival of the San People in a Changing World

Colonial and postcolonial governments established national parks and game reserves across southern Africa (Bolaane 2004; Hitchcock 2001). This forced the San into sedentary lifestyles, ones they were unaccustomed to, as hunting was made illegal, causing many to struggle as they sought to adopt new ways of life (Bolaane 2004; Hitchcock 2001). Research has revealed challenges in generalising the survival strategies of various San communities in different postcolonial states (Bolaane 2004; Hitchcock 2001). One reason for these difficulties is that the San people have become socially, ethnically, and economically diverse across southern Africa (Lee and Hitchcock 2001). This diversity can be attributed to the political realities and governance systems in the countries where they found themselves after the partition of Africa (Lee and Hitchcock 2001).

Considering these challenges, the survival strategies of the San people have become increasingly complex and diverse due to the differing realities in different countries. For instance, in Namibia, the San have shifted from a traditional hunter-gatherer lifestyle to a part-time hunter-gatherer existence, often living near commercial farms where they provide cheap labour (Woodburn 1988). A similar situation exists for some San communities in South Africa, where, according to Sylvain (2004), they have lived and worked on white-owned farms for up to four generations as low-wage labourers. In other parts of South Africa, their survival strategy involves practising traditional medicine and offering local treatments for poverty-related illnesses (Sylvain 2002).

In Zimbabwe, Madzudzo and Dzingirai (1995) argue that the San people survive through exchange services. Due to social exclusion and deprivation of access to socio-economic opportunities (Zhou 2014), the San often form verbal agreements and partnerships with other groups who have access to farm equipment. In these partnerships, those with farm equipment plough the San's land, and in return, the San herd their cattle for an entire season (Dube et al. 2021). Consequently, San men sometimes clear the fields of other groups, and in return, those groups help fence the San's fields (Dube et al. 2021). Yet, research suggests that shifting from a hunter-gatherer society to a free-market economy is a complex process for the San people

and requires further study to better comprehend the manifold, complex socio-cultural changes involved (Maggs and Whitelaw 1991). For example, in response to social exclusion in many southern African communities, many San people have turned to alternative survival strategies, including seeking philanthropic assistance from charity networks, development agencies, and churches (Hitchcock 2002).

In some parts of southern Africa, the San people rely on government-sponsored food parcels for survival (Ikeya 2001). In other areas, they have engaged in activism, protesting and lobbying against environmentally harmful development projects, such as mining and irrigation schemes that some southern African governments have initiated with 'aid' from Western countries and donor agencies (Durning 1989, 1992; Miller 1993). In other cases, groups of San people have developed self-help strategies, such as the Ju/'hoansi in northeastern Namibia, who established the Nyae Nyae Farmers Cooperative (Lee and Guenther 1993; Lee 2013; Bieseke 1990; Hitchcock 1992). Others, exposed to Western knowledge, continue to migrate, seeking better employment opportunities as a survival strategy (Hays and Ninkova 2018; Lavi and Bird-David 2014). Despite their varying circumstances, the San people across southern Africa strive to maintain their cultural values, as they hold a unique perspective on nature. Their special relationship with nature will be explored next.

4 The San People and Environmental Sustainability

The San people have a unique way of understanding and interacting with their environment, offering valuable insights into how they perceive nature (Kearney 1984). Their perception of nature helps them to interact with their surrounding ecology in a sustainable manner. For example, the San distinguish between 'wet' and 'dry' phenomena. This distinction helps them differentiate between *!kwa-ka !gi:ten* (specialists who work with water and other 'wet' phenomena) and other *!gi:ten* (experts who work with 'dry' elements, such as veld medicines and game animals) (Hoff 2007: 12). This 'dry' domain also encompasses aspects of the underworld. This understanding allows the San to experience nature as a layered cosmos, with the underworld forming a significant part of it (Lewis-Williams and Dowson 1989: 122–141; Hoff 2007). In line with this worldview, some San people believe that if a hunter kills too many aardvarks or unnecessarily harms one during a hunt, a relative of the hunter will die as a consequence (Engelbrecht 1936: 88).

Others believe that killing a honey badger will result in the death of the offender's child (Engelbrecht 1936: 88). Moreover, in some San groups, such as the Korana, hunters believe that killing more than one giraffe may lead to the death of the hunter's entire lineage (Engelbrecht 1936: 88). Their views toward certain animals are similar to their views on certain plants. For example, vegetable foods are plentiful for much of the year, allowing San groups such as the *!Kung* to choose from a wide variety (Lee 1978). Furthermore, according to Lee (1973), out of the 150 species of wild plants and animals that contribute to their sustenance, by far the most important is 'mongongo' (*Ricnodendron rautanenii*). This remarkable fruit and nut supplies up to one-half of the vegetable component of the *!Kung*'s diet. This

selective approach to food supports the enduring management of their environment, as they take only what they need, without engaging in commercial exploitation.

Some San people consider themselves ‘purposeful conservationists’, carefully managing the resources in their environment (Minguzzi et al. 2022). For instance, within their belief system, individuals who are perceived to be overhunting attract the critical attention of their community (Minguzzi et al. 2022). There is an anecdote that if someone has been particularly successful in hunting multiple times in a row, they should be temporarily restricted from hunting to avoid becoming the target of envy. These practices reflect what has been described as the ‘San conservation ethic’, which underpins an enduring and sustainable relationship with the environment (Minguzzi et al. 2022).

Furthermore, due to their nomadic lifestyle, the San people do not build permanent structures. Instead, they stay in rock shelters and/or open camps near waterholes. Their shelters are made from materials found in their surroundings, such as thin branches, grasses, and rocks (Minguzzi et al. 2022). A shelter can be erected in less than an hour, and huts are often arranged in a circular pattern around a central fireplace (Minguzzi et al. 2022). Because of their mobility, the San do not cultivate gardens or keep domesticated animals (Smith 1990). Furthermore, they also do not make pottery; instead, they use ostrich eggshells to store and hold liquids (Beck 2009). These eggshells are buried underground to keep their contents cool (Beck 2009).

In terms of ecological sustainability, the San people rely heavily on plant-based traditional medicine (Dan et al. 2010). The use of traditional medicine is a testament to the effectiveness of indigenous knowledge. Additionally, it reflects ecological sustainability, as research shows that pharmaceutical companies sometimes contribute to environmental degradation (Henning-Roshong et al. 2009). Among the San, plants and trees are harvested to prepare traditional medicines, but only for use within family circles (Henning-Roshong et al. 2009). During long hunting trips, the San also use a natural appetite suppressant *Hoodia gordonii*, which can curb hunger for up to 24 h (van Heerden 2008). This reduced need for food also aids in ecological preservation and is juxtaposed by Western lifestyles that reflect a “pandemic of obesity and civilization diseases” (Kopp 2019: 2221). Crucially, Kopp (2019) observes that.

Westernized populations are plagued by a plethora of chronic non-infectious degenerative diseases, termed as “civilization diseases”, like obesity, diabetes, cardiovascular diseases, cancer, autoimmune diseases, Alzheimer’s disease and many more, diseases which are rare or virtually absent in hunter-gatherers (2019: 2221).

Contrastingly, the use of *Hoodia gordonii* highlights the value of indigenous knowledge and has been adopted by modern Western medicine to help treat obesity (van Heerden 2008).

Like many other indigenous groups, the San people demonstrate an intimate and reciprocal relationship with their surrounding environment (Abas et al. 2022; Dan et al. 2010; Luetz 2024). They believe that protecting the environment is essential for ensuring its continuity and shaping how they interact with nature, reflecting a strong commitment to its preservation. Their relationship with the environment is founded on the belief that nature exists to serve them, and in return, they must nurture and care for it (Dube et al. 2021; Lee and Devore 1976). This perspective has led the San to evolve intuition and develop practices and insights aimed at maintaining a balanced relationship with nature (Dan et al. 2010). This knowledge of environmental preservation is deeply embedded in San culture and is passed down from one generation to the next (Lee and Devore 1976). It is often metaphysical and communicated and shared orally, as it is primarily derived from experiences accumulated over time (Lee 1978).

The San people have a harmonious relationship with their environment and have been living in ecological balance for over 20,000 years (Lee 1978). Unlike Western societies, which have developed weapons of mass destruction that can harm the environment (Ayre et al. 2021; Samiei 2019), the San people have committed to a simple lifestyle, remaining hunters. Their predilection for a peaceful and sustainable subsistence has enduringly contributed to the conservation of their environment. The San primarily use bows and poison-tipped arrows for hunting and also engage in trapping (Chaboo et al. 2016). These sustainable practices help preserve the environment and support the San communities' self-sufficiency. Life in a San community typically does not rely on external products for sustenance.

San spirituality plays a crucial role in ecological preservation. Their religious practices are unique and deeply connected to the land (Ndlovu 2010). Morse (2012) supports this view, stating that a common element among the San people is their profound spiritual connection to their traditional lands and waters. The San believe that no individual owns the land; instead, it is shared as a common resource that everyone has the right to use (Nkwae 2003). As such, the San revere the land as sacred, respecting it as a gift from God (Nkwae 2003). Because of these reverential and deferential beliefs, they feel a responsibility to protect the land. Viewing their land as a divine gift contributes to ecological preservation, as it discourages harmful environmental practices linked to exploitation, extinction, and climate change (Gabrys and Yusoff 2012; Luetz and Nunn 2023; Luetz 2026).

Finally, it has been observed that the San people of Zimbabwe tend to follow animistic beliefs (Ndlovu 2010). Testimonies indicate that trees are an important element in their worship. For instance, trees such as the 'mbuyu dema', embody sacred spaces, which may be used for worship and traditional healing rituals (Ndlovu 2010: 20). This reverence for sacred trees encourages the San to protect them, thus supporting ecological conservation.

5 Conclusion

As this chapter has shown, the San comprise diverse peoples across several southern African countries. Accordingly, scholarship must balance synthesis with care to avoid homogenising distinct communities and contexts. With this caution in mind, the following conclusions distil insights from the foregoing literature analysis on how San knowledge supports ecological sustainability.

The hunter-gatherer lifestyles of the San people have led some Western scholars to draw and then document mistaken conclusions in ethnographic studies. Specifically, the San (often referred to collectively as ‘bushmen’) have been recurrently portrayed as living a random and precarious existence, struggling for survival, constantly searching for food, and eking out a living on odds and ends. Such accounts typically advocate that the San must transition to modern free-market economies but then fail to acknowledge that it is these very economies that perpetuate their marginalisation. For instance, the San people are widely excluded from decision-making processes and political representation in various southern African states. As a result, they lack visibility and the political influence necessary to make their voices heard, thus leaving their perspectives muted. Sadly, such misrepresentations perpetuate ignorant notions that the San have no meaningful contribution to make in the modern world.

Conversely, there is considerable evidence that aspects of San indigenous knowledge have been recognised, including by Western scholarship, as both medically and commercially significant. For example, the *Hoodia* plant, which is used by the San during long hunting treks, and which contains appetite-suppressing properties, has been identified as commercially exploitable. Similarly, the anti-inflammatory properties of the *devil’s claw*² can be linked to the San’s traditional medicinal practices. Finally, the San people understand how to interpret times and seasons. Using this indigenous knowledge to interpret seasonal changes, they leverage it to predict accurately where edible plants can grow, and during which seasons. Crucially, the San people harvest plants responsibly, avoiding overexploiting resources or damaging ecosystems—as such, their approaches to ecosystem management can be seen today as a form of sustainable ecological stewardship that is worthy of widespread recognition, esteem, and emulation. Figure 3 reflects examples how the San people of southern Africa use their indigenous knowledge for ecological sustainability.

²Devil’s claw (*Harpagophytum procumbens*) is a plant native to southern Africa. Its claw-shaped fruits give the plant its name. The roots of devil’s claw are traditionally used in herbal medicine for their anti-inflammatory and pain-relieving properties, especially to treat arthritic conditions, reduce pain and inflammation linked to osteoarthritis and rheumatoid arthritis or to alleviate headaches or chronic lower back pain. It is also used in traditional medicine to treat digestive issues and stimulate appetite (Brendler et al. 2006; Kemper 2008).

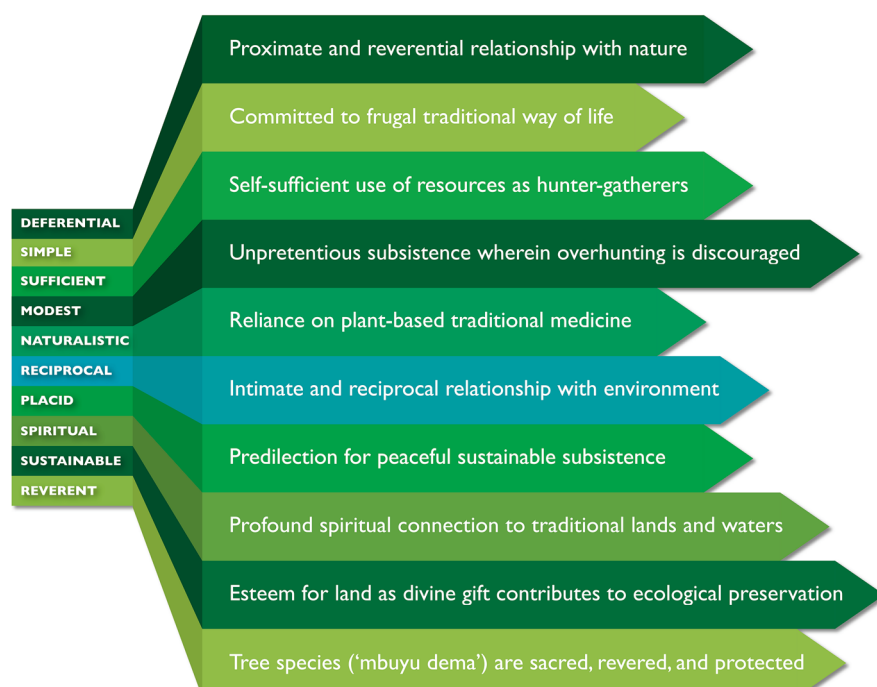


Fig. 3 Conceptualisation of the affinities between San indigenous knowledge and ecological sustainability (concept by authors)

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