

Cultural Heritage, Spirituality, and Conservation Practices in the Kinabalu UNESCO Global Geopark Communities

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ABSTRACT

Cultural and spiritual beliefs play a critical yet often underexplored role in shaping conservation behaviour within protected landscapes. This study examines how cultural heritage, spirituality, and traditional practices influence conservation behaviour among indigenous communities living within the Kinabalu UNESCO Global Geopark (KUGGp), Malaysia. Adopting a qualitative case study approach, semi-structured interviews were conducted with community leaders from selected villages in Ranau, Kota Belud, and Kota Marudu. Data were analysed thematically and guided by the Integrative Model of Behaviour Prediction (IMBP) to understand how attitudes, perceived norms, self-efficacy, and external constraints interact with culturally embedded practices. The findings reveal that spiritual beliefs associated with sacred landscapes, particularly Mount Kinabalu, function as informal conservation mechanisms that regulate behaviour and reinforce collective responsibility toward nature. Traditional practices such as Tagal and Monolob operate as culturally legitimate systems that sustain ecological balance, while moral obligations rooted in ancestral traditions strengthen pro-conservation norms. The study also highlights the emerging role of cultural heritage in sustainable tourism, alongside challenges related to limited institutional support and capacity building. Local leadership was found to be central in mediating between traditional knowledge systems and formal Geopark conservation initiatives. Overall, the study demonstrates that conservation behaviour in KUGGp is deeply embedded within cultural and spiritual foundations rather than driven

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solely by externally imposed regulations. Integrating these cultural dimensions into Geopark governance and policy frameworks is essential for enhancing conservation effectiveness and community engagement.

Contribution/Originality: This study contributes to existing literature by examining how cultural heritage, spirituality, and traditional practices influence conservation behaviour within the Kinabalu UNESCO Global Geopark communities.

1. Introduction

Communities are key stakeholders in protected areas, including those designated by UNESCO such as UNESCO Global Geoparks (UGGp), World Heritage Sites (WHS), and Man and the Biosphere (MAB) reserves (Ibrahim et al., 2023a). Many of these protected areas are inhabited, which means local communities play a direct role in achieving one of the core objectives of protection: conserving unique and biologically significant features (Djosetro & Behagel, 2024; Ibrahim et al., 2023b; Thondhlana & Cundill, 2017; Zhang et al., 2025).

One such protected area is the Kinabalu UNESCO Global Geopark (KUGGp). It is internationally recognised for its outstanding geological features, particularly Mount Kinabalu, as well as its high biodiversity (Fickert, 2019). Like many UNESCO-designated sites, KUGGp is also home to local communities. As a result, understanding local uniqueness especially cultural and spiritual values is essential for integrating conservation objectives with the everyday lives of the people who live there.

Although research on community participation in conservation has increased (Al Amin et al., 2021; Bennett et al., 2017; Clifton & Majors, 2012; Halim et al., 2011; Holland et al., 2022; Htay et al., 2022; Tessema et al., 2010), each community has distinct characteristics that shape how cultural and spiritual values interact with conservation efforts. These differences mean that conservation outcomes cannot be assumed to be uniform across communities. A deeper understanding of specific cultural and spiritual beliefs allows researchers and policymakers to develop more grounded and effective approaches for engaging communities in conservation initiatives (Allgood et al., 2025). In this study, the focus is on communities living within the Kinabalu UNESCO Global Geopark.

Despite growing recognition of the role communities play in biodiversity conservation, research that focuses on community-specific cultural and spiritual dimensions remains limited, particularly in the context of natural landscape conservation. Existing studies tend to emphasise what communities are capable of doing or their participation outcomes (Al Amin et al., 2021; Allgood et al., 2025; Halim et al., 2011; Holland et al., 2022; Sheikh, 2006a), rather than how their cultural and spiritual foundations shape conservation behaviour. This gap is evident in Malaysia and the wider Southeast Asian region, where conservation policies often prioritise ecological outcomes while giving less attention to local belief systems and lived practices (Jeperi et al., 2020; Miller et al., 2020; Shuib et al., 2012; Sloan et al., 2019).

Ignoring cultural and spiritual characteristics can create a mismatch between conservation initiatives and the traditional ways of life of local communities (Osterhoudt, 2018). This is because community diversity cannot be addressed through a “one size fits all” approach. Each community has its own lifestyle, belief system, and inherited

traditions. When these elements are not properly understood, communities may resist or fail to comply with conservation policies, especially when such policies conflict with daily practices (Osterhoudt, 2018). This not only weakens conservation planning but also results in inefficient use of resources that could otherwise contribute meaningfully to environmental protection.

Therefore, this case study aims to examine in depth the cultural and spiritual characteristics of communities living within the KUGGp. The study seeks to assess the extent to which these cultural values align with, or can support, the principles of environmental conservation that underpin the designation of the area as a protected site.

The study is guided by the following research questions:

- i. How do the cultural and spiritual beliefs of local communities shape their conservation practices in the Geopark.
- ii. What role does cultural heritage play in promoting sustainable environmental stewardship and conservation in the Geopark?

2. Literature Review

2.1. Communities Role in Natural Biodiversity Conservation

Communities play a crucial role in implementing initiatives in the areas they inhabit, including biodiversity conservation (Zhang et al., 2025). In biodiversity conservation, communities can act as protectors and monitors of local ecosystems (Tyagi & Jha, 2025). For example, by safeguarding endangered species or reporting suspicious activities that may harm the natural environment (Allgood et al., 2025).

Previous studies have highlighted several models for engaging communities in conservation, such as community-based natural resource management (CBNRM), co-management approaches, and participatory conservation (Del Campo & Wali, 2007; Gnansounou et al., 2022; Mbaiwa et al., 2018). These frameworks emphasise the importance of community involvement in the management of the natural areas they inhabit. For instance, government-led initiatives in Hunshandak Sandland, China that involved local communities in ecosystem restoration. Activity have been shown to improve the effectiveness of conservation actions. Similar findings in other regions further demonstrate that the active participation of local communities significantly enhances conservation outcomes.

However, several barriers can limit the effectiveness of community participation. For example, low awareness levels in biodiversity conservation importance have hindered engagement in conservation activities as well as other challenges include a lack of incentives, top-down policies, and local economic constraints, all of which can reduce motivation for community involvement (Gregg et al., 2025; Ibrahim et al., 2025). Overall, these studies show that community participation is critical for successful conservation. Engaging local stakeholders can significantly improve conservation effectiveness, but careful attention must be paid to factors that may inhibit participation. Authorities and policymakers should proactively address these barriers to encourage and sustain meaningful community involvement in biodiversity conservation.

2.2. Protected Areas as Inhabitant Landscapes

Protected areas designated by are rarely empty wilderness (Phillips, 2014). Including sites such as UNESCO Global Geoparks (UGGp), where this site are explicitly recognised as inhabited landscapes, where community residency is an integral part of the designation. Consequently, human inhabitants may function either as contributing factors or as challenges to the objectives of gazetting environmentally significant areas. This situation arises from frequent interactions between local communities and natural resources, including both flora and fauna. Such interactions pose management challenges, particularly in balancing local livelihoods with the long-term sustainability of natural ecosystems. Communities residing within protected areas generally have more direct and frequent engagement with natural resources compared to those living further away, increasing the complexity of conservation planning. As a result, management actions in inhabited protected areas must be carefully designed and implemented.

Past studies have demonstrated both benefits and challenges associated with inhabited protected areas (Sobhani et al., 2022; Tessema et al., 2010; Thondhlana & Cundill, 2017). On the positive side, local communities can play a meaningful role in governance through participatory involvement, particularly by contributing place-based and experiential knowledge. Incorporating local knowledge has been shown to support adaptive management strategies and improve conservation outcomes, as communities are often able to identify, monitor, and manage critical resources effectively (Djosetro & Behagel, 2024). For example, ethnobotanical surveys in Burkina Faso highlighted the socio-economic importance of plant species to local communities, providing essential insights for more context-sensitive resource management strategies (Mbayngone & Thiombiano, 2011).

However, the literature also consistently reports significant challenges arising from human presence within protected areas. Habitat loss and fragmentation caused by infrastructure development, agricultural expansion, and urbanisation remain among the primary drivers of biodiversity decline (Jacobson et al., 2019; Rahimi & Dong, 2022; Tu et al., 2025). In Iran, for instance, road construction and irrigated agriculture have been shown to affect up to 30.3% of protected areas through direct human disturbance (Rahimi & Dong, 2022). Similarly, economic development on the Qinghai-Tibet Plateau has resulted in a 41.08% reduction in large, intact wilderness patches, illustrating the cumulative impact of human activities even within designated conservation zones (Tu et al., 2025).

In this context, Kinabalu UNESCO Global Geopark (KUGGp), selected as the study site, shares several characteristics with inhabited protected areas documented in previous studies. The interaction between human communities and natural environments within KUGGp reflects patterns observed elsewhere, suggesting that lessons from global and regional research are directly applicable. Understanding these dynamics is therefore essential for informing management strategies that seek to balance conservation objectives with community livelihoods in KUGGp.

2.3. Theoretical framework

This study employs the Integrative Model of Behaviour Prediction (IMBP) proposed by Fishbein and Yzer (2003) as its theoretical foundation. The model explains behaviour as being shaped by three core determinants namely attitude, perceived norms and self-

efficacy that operating through behavioural intention. Behavioural action is expected when intention is strong and not obstructed by external conditions such as environmental constraints or insufficient skills. In contrast to earlier frameworks, including the Theory of Planned Behaviour, the IMBP explicitly accounts for these external influences, which enhances its suitability for examining conservation behaviour in indigenous contexts where intention-behaviour gaps are often shaped by structural and socio-economic realities. Within this study, the IMBP is used as an organising framework for both data collection and analysis, allowing for a systematic exploration of how internal determinants and external constraints interact to influence conservation practices among indigenous communities in the KUGGp.

3. Research Methods

3.1. Research context

UNESCO Global Geoparks (UGGp) are areas recognised for their international geological importance, while also possessing high ecological value and rich cultural heritage, both tangible and intangible. These sites are established to conserve geological heritage while supporting sustainable economic development and improving the well-being of local communities (Varriale et al., 2022). In 2023, the Kinabalu UNESCO Global Geopark (KUGGp) was officially designated by UNESCO in Sabah, Malaysia. The Geopark covers three districts namely Ranau, Kota Marudu, and Kota Belud located in North Borneo. Communities within the KUGGp are predominantly of Kadazan-Dusun ethnicity, comprising several sub-ethnic groups (Sabah Parks, 2025). Their primary economic activities include highland agriculture, livestock rearing, and tourism. Local livelihoods are closely linked to the surrounding landscape, which provides essential resources for farming, animal husbandry, and tourism-based income generation. Ecotourism plays a particularly significant role, with Sabah recognised as the leading tourist destination in Malaysia (Danting et al., 2018).

3.2. Interview guides development and credibility

The semi-structured interview guide was designed to reflect the objectives of the study and was based on the key constructs of the Integrative Model of Behaviour Prediction (IMBP). To strengthen its credibility, the draft interview questions were reviewed by environmental sociology experts from several Malaysian universities. Their comments were used to refine the phrasing, improve clarity, and ensure that each question was suitable for generating data relevant to the study objectives. This review process improved the methodological robustness of the study by ensuring that the interview guide was both theoretically informed and practical for engaging community participants.

3.3. Data collection

The study aimed to examine how the cultural and spiritual beliefs of local communities shape their conservation practices, and how cultural heritage contributes to promoting sustainable environmental stewardship and conservation within the Geopark. Participants were selected using purposive and snowball sampling, focusing on community leaders and representatives from cultural organisations. In total, seven semi-structured interviews were conducted between May and August 2025 (Table 1).

The interviews used open-ended questions guided by the IMBP framework to explore cultural beliefs, spiritual values, and their influence on conservation-related behaviours. Written and verbal informed consent was obtained from all participants prior to the interviews. Participants were drawn from several villages within the KUGGp, namely Marak Parak, Lohan-Ulu, Lohan Skim 2, and Takutan, Kiau Nuluh and Walai Tobilung cultural organisations. This approach ensured representation across diverse local and institutional contexts within the Geopark.

Table 1: List of informants involved in semi-structured interview

Participant	Gender	Roles	Category
K1	Male	Village Development and Security Committee (JKKK) Chairman	Local Community
K2	Male	Village Development and Security Committee (JKKK) Chairman	Local Community
K3	Male	Village Development and Security Committee (JKKK) Chairman	Local Community
K4	Male	Village Development and Security Committee (JKKK) Chairman	Local Community
K5	Male	Village chief	Local Community
K6	Male	Representative From Cultural Organisation	Cultural Organisation
K7	Female	Village Secretary	Local Community

3.4. Data Analysis

All interviews were audio-recorded, transcribed verbatim, and imported into Atlas.ti version 24 for systematic coding. The data were analysed thematically using a primarily deductive approach guided by the Integrative Model of Behaviour Prediction (IMBP). To ensure a rigorous and transparent analytical process, this study followed established qualitative thematic analysis procedures outlined by [Corden and Sainsbury \(2006\)](#), with additional analytical steps informed by [Scharp and Sanders \(2019\)](#).

Although the initial coding framework was structured around the core IMBP constructs (Attitude, Perceived Norms, and Self-Efficacy) the analysis remained closely grounded in participants' accounts. This allowed new, inductive insights to emerge beyond the predefined categories. In this way, the theoretical framework served as a flexible interpretive guide rather than a rigid coding template, supporting a nuanced interpretation of the data ([Miles & Huberman, 2020](#)).

4. Results and discussion

This section explore into the findings from the thematic analysis, focusing on the interaction between cultural heritage, spirituality, and conservation practices. There are 4 primary themes identified from the interview with 7 key informants. Themes arise are namely Spiritual Beliefs and Sacred Landscapes, Cultural Practices in

Environmental Stewardship, Cultural Heritage and Sustainable Tourist, Local Leadership in Conservation.

4.1. Spiritual Beliefs and Sacred Landscapes

Spiritual beliefs held by local communities position Mount Kinabalu, the central feature of the KUGGp, as a sacred landscape that functions as an informal conservation mechanism. These beliefs strongly influence how community members perceive and interact with ecologically sensitive areas, particularly in terms of respect, restraint, and protection.

As described by the informants:

“We believe that Mount Kinabalu is a sacred place and a resting place for the spirits of our ancestors. This belief is very strong among the community.” (K1)

“We believe that Mount Kinabalu is a sacred place that protects nature, and this belief is shared by our community.” (K2)

These accounts indicate that the belief in sacred landscapes encourages respect for the environment and indirectly limits the overexploitation of natural resources within areas regarded as spiritually significant. Such beliefs operate as informal rules that guide behaviour without the need for formal enforcement. In this context, sacred natural sites (SNS) are widely recognised as important culture-based conservation mechanisms that contribute to the protection and management of biodiversity and ecologically important ecosystems within local communities ([Khan et al., 2008](#); [Misra, 2011](#)).

Similar patterns have been documented across different cultural contexts, where sacred sites such as forests, rivers, and mountains are protected due to their spiritual significance. For example, among the Shona people of Zimbabwe, respect for sacred trees, forests, springs, and animals discourages resource exploitation and supports environmental preservation ([Musendekwa, 2025](#)). Likewise, in Karendi, Indonesia, belief in *marapu*, ancestral spirits believed to guard the forest restricts access to sacred resources and functions as a culturally embedded form of conservation planning ([Fowler, 2003](#)).

Within the Integrative Model of Behaviour Prediction (IMBP), these spiritual beliefs shape conservation behaviour by influencing both attitudes and perceived norms. Viewing Mount Kinabalu as sacred frames environmental protection as a moral obligation, while shared beliefs within the community reinforce expectations about appropriate behaviour in sacred spaces. As a result, conservation practices are internally motivated and socially regulated, rather than imposed through external rules, aligning closely with the conservation objectives of the Geopark.

4.2. Cultural Practices in Environmental Stewardship

The findings demonstrate that traditional cultural practices function as embedded systems of environmental stewardship rather than informal or symbolic customs.

As described by the informants,

“We take care of our area, especially the rivers and forests, through the Tagal system to ensure that natural resources remain sustainable.” (K2)

“Monolob is a ritual performed to ensure our safety before climbing the mountain. We ask permission and blessings from the spiritual beings believed to inhabit the mountain.” (K3)

Practices such as *Tagal* and *Monolob* function as culturally legitimate mechanisms that can regulate behaviour, enforce collective norms, and maintain ecological balance (Foo et al., 2022; Tyagi & Jha, 2025). In indigenous communities, conservation is often enacted through these culturally grounded practices rather than externally imposed regulations (Apriani & Julianty, 2021). Similarly, The Nembe people in Nigeria use totemism to protect species like pythons and eagles, shows that communities integrate cultural and spiritual beliefs into their conservation efforts (Sibiri, 2014). A strong sense of obligation exists among community members who are born into these traditions, driven by the moral authority of respecting ancestral practices.

Traditional beliefs, including taboos, have long served as drivers of pro-conservation behaviour (Asante et al., 2017). However, the erosion of traditional knowledge can weaken this system over time (Gómez-Baggethun et al., 2010). With formal recognition and support for these cultural practices, communities can more effectively internalise their responsibility toward environmental stewardship (Miller et al., 2015; Shandas & Messer, 2008), ensuring that these practices continue to guide sustainable resource management.

From an IMBP perspective, these practices strengthen perceived norms by establishing shared expectations regarding acceptable environmental behaviour. Community members comply not due to formal enforcement, but because these practices are socially endorsed and culturally meaningful. At the same time, rituals such as *Monolob* and *Tagal* enhance self-efficacy, as individuals feel guided and protected when interacting with sacred landscapes, reinforcing responsible behaviour.

The alignment between these practices and the Geopark’s conservation goals suggests that cultural heritage can act as a complementary governance mechanism. Rather than replacing traditional systems, Geopark initiatives may be more effective when they recognise and integrate existing cultural stewardship practices. This highlights the importance of culturally informed conservation strategies within UNESCO Global Geoparks.

4.3. Cultural Heritage and Sustainable Tourist

The findings indicate that local communities within the KUGGp are increasingly aware of the economic value of their cultural heritage and its potential role in supporting sustainable tourism. Cultural expressions such as traditional dances, handicrafts, and cultural festivals are beginning to be viewed not only as identity markers but also as possible attractions for eco-tourists.

As one informant explained,

“We have not fully promoted our culture to tourists yet, but this is something we plan to improve in order to showcase our heritage” (K4)

This reflects a growing openness among community members to engage with tourism as a livelihood strategy while maintaining their cultural identity. However, the findings also reveal that the integration of cultural heritage into geopark tourism remains limited and uneven. Informants highlighted the lack of structured training, limited infrastructure, and insufficient external support as key barriers preventing communities from fully capitalising on cultural tourism opportunities. Without proper guidance, there is concern that cultural practices may be misrepresented or commodified in ways that undermine their original meaning. This tension highlights the need for culturally sensitive tourism planning that balances economic benefits with respect for traditional values.

From a conservation perspective, cultural heritage-based tourism presents both opportunities and risks. When properly managed, cultural tourism can reinforce conservation goals by strengthening local attachment to place, increasing community participation, and providing alternative income sources that reduce pressure on natural resources. Previous studies have shown that community-based and culturally grounded tourism can enhance environmental stewardship when local communities retain control over how their culture is presented and utilised (Anindhita et al., 2024). In the context of the KUGGp, integrating cultural heritage into tourism initiatives aligns with Geopark objectives that emphasise sustainable development, cultural preservation, and community well-being.

Overall, these findings suggest that cultural heritage functions as a latent asset within the KUGGp. While communities recognise its potential contribution to sustainable tourism and conservation, realising this potential depends on institutional support, capacity building, and governance structures that respect both cultural integrity and conservation priorities.

4.4. Local Leadership in Conservation

The findings show that local leadership plays a central role in connecting cultural beliefs and spiritual values with conservation practices within the Kinabalu UNESCO Global Geopark. Community leaders such as village heads and representatives of cultural institutions act as key intermediaries between traditional knowledge systems and formal conservation programmes introduced through the Geopark framework. Their position allows them to translate conservation objectives into culturally meaningful terms that resonate with community members.

Several informants highlighted their responsibility in encouraging community participation in Geopark-related activities while safeguarding cultural continuity. As one village head explained,

“As a village leader, I make sure the community is involved in all programmes related to the Geopark, but the lack of support from external parties sometimes becomes an obstacle” (K5)

This reflects the leadership role in mobilising collective action while also revealing structural constraints beyond the community’s control.

Another informant emphasised the challenge of sustaining cultural practices alongside conservation efforts, stating,

“I try to ensure that our culture is not lost and continues, but we need more support from external parties to develop these programmes” (K3).

This suggests that while local leaders possess strong commitment and cultural authority, their effectiveness depends heavily on institutional backing, capacity-building, and long-term collaboration with external stakeholders.

From an analytical perspective, local leaders function as cultural brokers who shape conservation behaviour by reinforcing shared norms, values, and expectations within the community (Sheikh, 2006b). Their influence strengthens collective responsibility toward protecting sacred sites, maintaining traditional practices, and supporting Geopark initiatives. This finding aligns with broader literature that highlights the importance of leadership in community-based conservation (Sheikh, 2006b), particularly in contexts where conservation is closely tied to cultural identity and spiritual belief systems.

In the context of the KUGGp, the role of local leadership is especially critical because conservation is not enforced solely through formal regulations but negotiated through social relations, cultural legitimacy, and trust. When leaders are empowered and supported, they enhance community self-efficacy and participation, increasing the likelihood that conservation initiatives are accepted and sustained over time. Conversely, insufficient external support risks weakening these leadership roles, potentially undermining both cultural continuity and conservation outcomes.

5. Conclusion, caveat and policy implementation

This study demonstrates that conservation behaviour within the Kinabalu UNESCO Global Geopark is deeply embedded in the cultural, spiritual, and social foundations of indigenous communities. The findings show that conservation is not merely a response to formal regulations but is enacted through culturally legitimate practices, spiritual obligations, and locally enforced norms. Practices such as customary rules, leadership-led initiatives, and heritage-based activities function as behavioural mechanisms that regulate resource use and sustain ecological balance. These practices align with the Integrative Model of Behaviour Prediction, where attitudes shaped by cultural beliefs, perceived norms reinforced through collective traditions, and self-efficacy strengthened by local knowledge jointly influence conservation behaviour. Thus, the research questions are addressed by demonstrating that indigenous conservation behaviour is driven by an interaction between socio-psychological determinants and culturally grounded practices, rather than by external enforcement alone.

Despite these contributions, several limitations must be acknowledged. This study is context-specific and focuses on selected communities within the KUGGp, which limits the generalisability of the findings to other Geoparks or indigenous settings with different cultural and governance structures. The qualitative emphasis, while valuable for capturing depth and meaning, may not fully represent the diversity of perspectives within the wider community. Additionally, reliance on self-reported data introduces the possibility of social desirability bias, particularly when discussing culturally valued conservation practices. These limitations suggest that future research could benefit from

comparative studies across different Geoparks, mixed-method approaches, and longitudinal designs to examine how cultural and behavioural dynamics evolve over time.

From a policy and management perspective, the findings highlight the need to move beyond uniform, top-down conservation strategies. Policymakers and Geopark authorities should recognise indigenous cultural and spiritual practices as legitimate conservation mechanisms and integrate them into formal management frameworks. Strengthening local leadership, providing structured capacity-building programmes, and aligning tourism development with cultural values can enhance both conservation effectiveness and community wellbeing. Rather than imposing external models, conservation policies should be adaptive, culturally sensitive, and co-developed with communities to ensure long-term sustainability. In doing so, conservation initiatives within the KUGGp can better reflect lived realities while reinforcing the role of indigenous communities as active stewards of their natural and cultural landscapes.

Ethics Approval and Consent to Participate

The researchers used the research ethics provided by the Research Ethics Committee of Universiti Malaysia Sabah (Code: JKEtika 2/25 (26)). All procedures performed in this study involving human participants were conducted in accordance with the ethical standards of the institutional research committee. Informed consent was obtained from all participants according to the Declaration of Helsinki.

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Conflict of Interest

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

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