

# Rock Art, Ecology and Landscape: Ethnographical and Spatial Perspectives from the Nilgiris

Ramya K P

Pondicherry University

## Abstract

This is an important piece of prehistoric South Indian culture: rock art from the Nilgiri Hills. The paintings and engravings are often located in unusual ecological sites: rock shelters, hill slopes and transition zones between forest and grassland. Although several sites within the region have been documented in previous studies, the question of how the rock art, landscape, and indigenous movement patterns fit together has rarely been asked. This study investigates the spatial distribution of rock art sites on the Nilgiri plateau and how the ecological settings may have influenced the decisions made by people when creating them. It is based on spatial observations, archaeological documentation and ethnographic comparisons with indigenous communities such as Kurumbas and Irulas. The art is placed in its broader landscape and looked for patterns that recur: sites clustered close to seasonal water sources, on high vantage points and along likely routes of movement. The patterns suggest the art may have been used for ritual purposes, marking out territory or routes travelled by people. Ethnographic perspectives add another dimension, a sense of the symbolic and social meanings the landscape may have held. This study suggests that the Nilgiri rock art is best understood not as a collection of isolated artistic expressions, but as the outcome of a continuous relationship between human communities and their surrounding environments. Thus the study contributes to wider debates on landscape archaeology and the reading of rock art in South India.

**Keywords:** Landscape Archaeology, Spatial Analysis, Ethnography, Indigenous knowledge

## Introduction

Rock art is one of the earliest forms of symbolic expression of our species (Malla, 2017) and provides a valuable insight into prehistoric societies, belief systems and how people interacted with their environments. Rock paintings and engravings have been interpreted as traces of ritual practice (Lewis-Williams, 2002), territorial markers and expressions of social identity (Bradley, 1997) around the world. Recent discoveries (Oktaviana et al., 2024) have changed our understanding of the origins and development of rock art (Aubert et al., 2019), and challenged Eurocentric interpretations of the evolution of human culture (Berrocal & Gárate, 2023). For a long time it was thought that the earliest sophisticated art came from Upper Palaeolithic cave sites in Europe, especially in France and Spain (Clottes, 2008). That picture has changed now. Liang Metanduno (Sulawesi) produced a hand stencil dated to at least 67.8 ka, the oldest cave art in the world (Oktaviana et al., 2024). The date was derived using laser-ablation uranium-series (LA-U-series) analysis of calcite that had formed over the painting, providing a reliable chronological anchor (Aubert et al., 2024). The Sulawesi stencil is older than the hand stencil from La

Pasiega Cave, which dates to about 66.7 thousand years ago and which some scholars have attributed to Neanderthals. It is widely considered the oldest rock art created by Homo sapiens and shows that modern humans in Southeast Asia were producing art and communicating symbolically long before they reached Europe, about 54,000 years ago. The findings also lend credence to the idea that early modern humans entered the island networks of Wallacea with established artistic traditions as they traversed their way to Sahul. Thus, symbolic expression was part of early human cultural systems everywhere, not a novel invention of Europe (Oktaviana et al., 2024).

The paradigm of European Upper Palaeolithic cave art as the center of rock art interpretation has been increasingly challenged by academics. Research that takes into account the perspective of what are called the “peripheries” (Berrocal & Gárate, 2023) argues that the traditions of rock art must be understood in their own historical and social contexts, not as a biological universal of modern humans. Case studies from Southeast Asia, southern Africa, South America and the Pacific demonstrate that rock art is unevenly distributed over time and space, and that it often appears under particular social conditions (Berrocal & Gárate, 2023). These studies also suggest interruptions in production and challenge older models that posited one continuous artistic tradition linked solely to cognitive evolution. Drawing on this, Berrocal and Gárate (2023) claim rock art is a historically contingent phenomenon, product of specific social and economic conditions rather than an inevitable outcome of human evolution. They suggest that a large proportion of the world’s rock art is of Holocene age, often coinciding with the rise of food-producing economies and a more rigid territorial organization. In this sense rock art was not simply decorative. It was a social institution that played a part in structuring landscapes, in marking boundaries and communicating social power in emerging agricultural societies (Berrocal & Gárate, 2023).

In India, the research on rock art gained momentum with the pioneering work of V. S. Wakankar (1957) followed by systematic documentation by scholars like Jacobson (1970), Mathpal (1984), Neumayer (1983), Sonawane (1987) and Allchin and Allchin (1994). Important contributions in South India are Krishnamurthy (1941) in Andhra Pradesh, Chandramouli (2002), Sundara (1978) and syntheses at the state level, Rock Art of Tamil Nadu (Department of Archaeology, Tamil Nadu, 2005). Recent regional studies in Karnataka have shown basin-based spatial clustering of rock art (Mohana, 2024) with an emphasis on ecological and topographic settings.

Recent archaeological research (Brück, 2005; Tilley, 1994) has stressed the importance of understanding megalithic monuments in their wider landscape contexts rather than as isolated burial structures. Survey and spatial analysis of the megalithic complex of Hire Benakal (Bauer & Trivedi, 2013) indicate that the size, location and construction labour of a monument were directly related to social status and territorial organization. The authors argue that the construction of the large slab-supported dolmens implies a significant labour mobilisation and suggests the existence of social hierarchy within Iron Age communities. Bigger monuments also appear to be located close to prominent hill tops and water retention features. It implies that these monumental landscapes functioned as “powerscapes,” visually connecting ritual practice with control over key environmental resources (Bauer & Trivedi, 2013).

N. Nihildas (2014) made a micro-regional study of spatial distribution and stylistic characteristics of rock art sites in the Anjunad Valley. It lists a range of pictorial elements, such as animal forms, human-like shapes and abstract symbols, and points out a stylistic progression from earlier red ochre paintings to more recent white kaolin representations. The investigation further indicates a close spatial association of painted rock shelters, megalithic monuments and tribal settlements in the region. Through stylistic comparison and ethnographic observation, the study provides a relative chronological framework and

suggests that the rock art traditions of the valley developed in a broader cultural landscape related to subsistence activities, ritual practices, and settlement patterns.

The Anjunad Valley is an extension of the continuum of the southern Western Ghats and is closely associated with the Nilgiri Hills in terms of geography and culture, but is a distinct ecological zone within this larger network of highlands. The Nilgiri rock art has been documented and stylistically classified by K. V. Raman, R. Poongundran and R. Selvaraj and placed within the Megalithic framework by K. Rajan (Department of Archaeology, Tamil Nadu, 2005). A significant advancement in landscape orientated research comes from Ramalingam et al. (2023), who explored prehistoric rock art in Tamil Nadu using geospatial techniques. Nevertheless, while Nilgiri rock art has been documented and stylistically analysed, little attention has been paid to the spatial clustering of sites in relation to river valleys, elevation zones and ecological corridors in the district.

### **Objectives and Scope of the Study**

This study explores the spatial distribution of rock art sites in the Nilgiri Hills and contextualises them within their wider environmental and cultural contexts. It considers the sites' relationship to ecological features such as topography, water sources and vegetation, and their relationship to the surrounding archaeological landscapes. Here, the cultural importance of these sites is read through ethnographic perspectives in an effort to move beyond purely descriptive approaches, toward a more integrated landscape-based understanding.

### **Research Questions:**

The paper investigates the relationship between rock art, ecology and landscape in the Nilgiris, by posing three questions:

What are the spatial patterns for the distribution of rock art sites in the Nilgiri Hills?

How are these sites sited in relation to ecological factors?

How far can ethnographic insights from indigenous communities inform the interpretation of these spatial patterns?

### **Region of Study**

The study area is the Nilgiri Hills located at the tri-junction of Tamil Nadu, Kerala and Karnataka states in South India (Figure 1). The region is part of the Western Ghats mountain system and is characterised by high altitude plateaus, steep valleys, shola forests and grassland ecosystems. It contains a rich archaeological landscape including rock art sites, megalithic monuments and habitation remains which testify to a long-term human occupation. Its diverse ecological zones and its location on inter-regional routes make it especially apt for investigating the interaction of environment, mobility and cultural practices.

### **Procedure**

The Nilgiris have a number of rock art sites in natural rock shelters and cliff faces in different ecological zones. Major river systems like the Moyar and the Bhavani traverse the region and are important ecological corridors. The study is mainly based on secondary data obtained from published archaeological reports, research articles and books on rock art of South India. Information on site locations, motifs and landscape contexts was obtained from key works on the documentation of the Nilgiri rock art sites. We also examined

descriptions of the sites and photographs from previous publications to better understand the spatial and environmental settings of the rock art locations. These sources together provided the basic information on the distribution of rock art sites in the Nilgiri region and their characteristics.

A spatial analysis was then performed to explore the relationship between the sites and their surrounding landscapes. The locations of the selected sites were examined relative to environmental features such as elevation, proximity to water sources, rock shelter formations and visibility of the surrounding terrain. Sites were examined regarding their distribution along valleys, slopes and likely movement routes over the Nilgiri plateau. By examining these spatial patterns, the study seeks to determine if the locations of rock art sites are a reflection of a deliberate selection of ecologically and culturally important sites.

Ethnographic view of indigenous communities of Nilgiris was also used to interpret cultural value of rock art landscapes. Communities like the Kurumbas, Todas and Irulas over time test the traditions and belief systems associated with the forests, hills and sacred spaces in the region. While direct cultural continuity cannot be assumed, ethnographic studies do provide useful insights into possible symbolic or ritual significance of landscapes to communities living in similar ecological settings. Thus, these perspectives were used tentatively as interpretive frameworks for thinking about potential cultural meanings of rock art sites.

## **Ecology, Survival and Rock Art Placement**

### **Mobility Corridors: River Valleys**

The spatial arrangement of rock art sites in the Nilgiri Hills exhibits a strong association with major river valleys, indicating that these landscapes have acted as important mobility corridors for past communities. The Moyar River basin is near Vellerikombai and the prominent rock art shelters at Karikkaiyur and Kakaikundu overlook the valleys formed by the Moyar River and the Bhavani River. These rivers cut natural channels through the rough country of the Nilgiri plateau, linking the highland and lowland areas. River valleys would have provided reliable access to water resources, vegetation and animal populations, making them favourable zones for hunting and seasonal movement. The existence of rock shelters overlooking these valleys may thus be indicative of their strategic significance in the wider landscape. These types of sites offer clear views of animal movement along the valley floor and forest edges, which would have been advantageous in terms of hunting. These routes may also have provided the opportunity for interaction between different ecological zones and neighbouring regions, thus allowing the movement of people, resources and cultural practices. The placement of rock art sites along these routes indicates their integration into the habitual routines of mobility and landscape use, and the association between artistic expression and functional layout of space in the Nilgiri environment.

### **Access to Permanent Water Sources**

A number of rock art sites in the Nilgiri Hills also show a clear association with perennial water sources indicating that access to reliable water was an important factor in site selection. All the rock art sites in Vellerikombai, Karikkaiyur and Kakaikundu are located close to rivers, streams or natural springs. These water sources would have provided a dependable source of water for human consumption, domestic use and for livestock and would have made these areas attractive for repeated occupation. Water availability, in particular on a perennial basis, is a key factor in many prehistoric settlement patterns, especially in upland environments where water resources may otherwise be unevenly distributed. Reliable sources of water would have been useful for hunting and gathering as well as for pastoralism, as they would have

attracted wild animals and provided places for domesticated animals to graze. In addition, riverbanks and springs frequently provide fertile ecological niches that are densely vegetated and provide access to plant resources, medicinal herbs, and raw materials necessary for daily subsistence.

The proximity of rock art shelters to such water sources implies that these locations may have been convenient habitation or resting places during seasonal movement across the landscape. These sites may have been temporary camps or seasonally used shelters where members of the community gathered for subsistence activities, social interaction and ritual practices. Thus, the regular association of rock art locations with perennial water sources points out the importance of environmental factors in the development of patterns of site selection and landscape use in the Nilgiri region.

### **Wildlife Rich Forest Zones**

The rock art sites at Vellerikombai, Karikkaiyur and Kakaikundu are in the forested high altitude parts of the Nilgiri Hills that are home to a rich diversity of plants and animals. Such habitats may have provided access to wild animals such as boar and deer. These were potentially important food sources for hunter-gatherers and early pastoralists. The woodlands also provided a range of edible plants, fruits, tubers and medicinal herbs, which may have complemented their sustenance. There were so many creatures living there. Such locations would have been ideal for hunting. The Hunters might have used rock shelters on the edges of forests or overlooking valleys as strategic observation stations from which to watch animals moving. Much of the rock art in the area is made up of animals and hunters, which suggests that shooting was very important to the painters in their daily life and in their symbolic world. Ethnographic traditions among the indigenous populations of Nilgiris also indicate the enduring cultural relevance of wildlife in ritual and social rituals. For example, the Irula boar dance echoes the community's centuries-old hunting traditions and the vital significance of wild animals in their cultural life. Cultural activities provide useful ethnographic analogies for the occurrence of animal imagery in rock art. Not only were forests a source of food and shelter, but they were also essential to ceremonies and culture. The interactions with animals were utilitarian as well as symbolic.

### **Rock Shelters as Seasonal Occupation Points**

geological formations associated with several rock art sites in the Nilgiri Hills offered natural shelters suitable for temporary occupation and other human activities. The steep rock faces and natural overhangs at Vellerikombai create sheltered spaces that offer protection from rain, wind and intense sunlight. Similar geological formations are seen at Karikkaiyur and Kakaikundu where rock shelters are formed by large boulders and cliff faces. Such naturally protected areas would have provided convenient resting places for communities moving through the landscape. Such shelters were especially suited to the seasonal or transitory nature of hunter-gatherer and pastoral groups that relied on movement as part of their subsistence strategies. These rock shelters may have been used as temporary camps during hunting expeditions or seasonal movements through forested areas, a place to rest, store equipment or take shelter during inclement weather. Their proximity to water sources, forest resources and wildlife-rich zones further increased their desirability as points of occupation. In addition to their practical function as habitation spaces, rock shelters offered suitable surfaces for the creation of rock art. The overhangs sheltered the smooth rock faces, which provided durable surfaces for the application and long-term preservation of pigments. Therefore, these places probably had more than one function, not only as places for temporary living, but also as places for symbolic and ritual activities. The presence of rock art in these

shelters, thus, hints at the incorporation of artistic expression into the daily life and seasonal movements through the Nilgiri landscape.

### **Ritual Continuity and Ethnographic Connections**

#### **Kurumba Traditions and Regional Rock Art**

The rock art found in the Nilgiri Hills shares several visual themes with the traditional practices of the Kurumba community. Historical accounts record that Kurumba villagers regularly painted human figures, local animals, and symbols on the walls of their homes using crushed charcoal and red earth. These murals served both everyday and ceremonial purposes. During specific seasons—particularly festivals meant to bring rain or celebrate a harvest families repainted the walls to encourage fertility and good fortune. These living practices give researchers a helpful comparison for interpreting ancient stone paintings. At the same time, this comparison does not mean the Kurumba are direct descendants of the original rock painters. Modern ethnographic records cannot prove a historical link across centuries. Instead, the Kurumba tradition simply demonstrates how painting, seasonal ceremonies, and the local environment often work together within a community.

#### **Irula Boar Dance and Cultural Connections to Wildlife**

Irula Boar Dance and Connections to WildlifeCommunities living in the Nilgiri Hills have always had a close bond with the forests around them and the animals that live there, and that bond often shows up in their rituals. One good example is the Boar Dance of the Irula people. It is tied to old hunting traditions and seasonal gatherings, and it revolves around the wild boar, an animal that has long been a source of food and a familiar sight in the local landscape. In the dance, performers copy the way a boar moves and behaves. Imitating a boar convincingly requires real knowledge of the animal, and that knowledge comes from years of living day to day in the forest. The boar also means more than a meal. It is often linked with strength, plentiful food, and the renewal that comes with each new season (Nanthakumar, 2019). Traditions like this offer a useful way to approach the animals painted in local rock art. Many panels across the Nilgiri region show wild animals and hunting scenes, which suggests that forest wildlife was central to life for prehistoric communities. The Irula dance cannot establish who made those ancient paintings. It does show how one animal can be both a staple food and a symbol shared by a whole community.

#### **Rock Art Depictions of Human and Animal Interaction**

Rock art panels at several sites in the Nilgiri Hills show people and animals interacting, which reveals how much wildlife mattered to the daily and cultural lives of earlier communities. At Vellerikombai and Karikkaiyur, for example, the paintings place human figures alongside bulls, wild boars, and other animals typical of the forest. In some panels the people seem to be hunting, drawn in lively poses that suggest chasing, moving, or closing in on an animal. These scenes may well show hunting, which was a vital part of survival in forested country. Hunting gave people meat and other resources, but it also demanded a deep understanding of how animals behave, where they travel, and when they are available during the year. Its appearance on rock may reflect just how central it was to everyday life. The paintings may also have meant more than food. Groups of figures gathered around an animal could point to ritual hunts, ceremonial performances, or communal activities tied to the seasons and to community gatherings. Ethnographic traditions among Indigenous groups in the Nilgiris also include ritual performances involving animals and hunting symbolism, so this imagery may belong to a wider set of cultural expressions about how people relate to animals. These readings are still tentative. Even so, the fact that

people and animals appear together again and again in the rock art shows how strongly wildlife shaped both the practical and the symbolic world of the Nilgiri region.

### **Cultural and Ecological Continuity**

Scholars have often read the rock art of the Nilgiri Hills through the lens of cultural and ecological continuity. Tiwary (2017) suggests that many of the images found in rock shelters, especially the hunting scenes, animal figures, and moments of human-animal interaction, may reflect early ceremonial or symbolic activities connected to how people fed themselves and to the rhythm of the seasons. Art, therefore, appears to have been closely connected to the daily routines, surroundings, and beliefs of the people who lived in these forests. Ethnographic traditions among Indigenous groups in the region help explain how ritual and survival fit together. The Irula community provides an example. Their Boar Dance is linked to hunting traditions, beliefs about fertility, and the changing ecological seasons (Nanthakumar, 2019). By copying the way animals move and representing wildlife symbolically, these rituals show a deep understanding of the forest and what it provides. However, present-day practices cannot be treated as equivalent to the making of prehistoric rock art. Even so, they show how ritual, survival, and artistic expression can overlap in societies that live in and from the forest. The Boar Dance is a living example of how animal symbolism and ritual performance remain part of everyday cultural life for Nilgiri communities. It also points to the possibility that similar links between environment, subsistence, and ritual may have shaped why rock art was created in earlier times, and what it meant to those who made it.

## **Results**

### **Distribution of Rock Art Sites in the Nilgiris**

Around sixteen prehistoric rock art sites have been documented in the Nilgiri District. The main ones are Karikkaiyur, Iduhatty, Vellerikombai, Konavakarai, and the Sigur Plateau. They are spread across the steep hill slopes and forested terrain, and most sit in rock shelters or on cliff faces, where the rock gives the paintings natural protection from the elements. The paintings at these sites are mostly done in red ochre, a pigment used widely in prehistoric rock art across India. Common motifs include stylised human figures, animals, geometric shapes, and scenes that may show hunting, ritual activity, or symbolic expression. In several panels the human figures are drawn in lively poses that suggest dancing, hunting, or ceremonial gatherings. The animals are mostly species typical of a forest ecosystem, which reflects how closely these early communities lived with their surroundings. As for dating, many of the sites are broadly assigned to the Megalithic phase, but the exact age is uncertain because most panels have not been directly dated by scientific methods. The Department of Archaeology, Tamil Nadu (2005) and other scholars have instead worked out approximate timelines by comparing styles, looking at associated archaeological material, and drawing on regional cultural parallels. Some researchers have also suggested links between certain rock art traditions and Indigenous communities, particularly the Kurumba. These ideas are still debated, and they are best seen as ethnographic analogies rather than direct evidence of who made the paintings.

### **Vellerikombai Rock Art Site**

The Vellerikombai rock art site is one of the more important painted rock shelters in the Nilgiri region (Figure 2). It was first identified by Allen Zackerel in 1984 and was later studied in greater detail by the Tamil Nadu State Department of Archaeology. The rock art here consists exclusively of painted images (pictographs), and no engravings or petroglyphs have been documented so far. The site lies on a steep rock face at an altitude of approximately 1268 metres above mean sea level, surrounded by dense forest and relatively inaccessible rocky terrain. Locally, it is known as “Eluthu Paarai,” meaning “inscribed

rock,” which reflects the local recognition of the painted surface as a place of symbolic significance. The rock formation is composed primarily of charnockite (granulite), which creates natural overhangs and shelters (Sridhar, 2005, p. 37). These features provide protected surfaces that favour the preservation of paintings and may also have offered suitable conditions for temporary habitation and seasonal occupation. The paintings at Vellerikombai include a variety of stylised animal and human figures, with particular emphasis on humped bulls. Based on stylistic characteristics and the prominence of cattle imagery, some archaeologists have suggested that the site may date to the Neolithic period, possibly reflecting the traditions of early cattle-keeping communities in the region. The style differs from many other Nilgiri rock art sites, where scenes more often depict hunting or dancing. This difference may point to variation in cultural or chronological contexts.

Ethnographic interpretations have also been proposed in relation to the traditions of Indigenous communities. Among the Kurumba people, the pictographs at the site are sometimes regarded as ancestral messages, and the term “Eluthu-parai” is used for such inscribed rocks. Certain symbolic designs similar to those seen in the rock art are reportedly used in ritual contexts, such as drawings made on house walls during festivals or markings applied in traditional healing practices. Such observations cannot be treated as direct evidence linking the Kurumba community to the creation of the prehistoric paintings. They do, however, suggest interesting forms of cultural continuity in symbolic expression.

Scholarly interpretations of the Vellerikombai rock art remain varied. Some researchers propose that the paintings were created by Neolithic pastoral groups who moved across the upland landscapes of southern India, possibly maintaining connections with regions of present-day Karnataka (Kumaravelu, 2021). Other interpretations emphasise the possible magico-religious or symbolic dimensions of the paintings, suggesting links with ritual practices related to survival, fertility, or social identity (Ramasamy & Nalliyappan, 2023). Overall, Vellerikombai offers valuable insights into the cultural, ecological, and symbolic dimensions of rock art traditions in the Nilgiri region. Its strategic location, distinctive motifs, and continued cultural associations make it an important site for understanding how prehistoric communities interacted with the landscape of the Nilgiris.

### **Karikkaiyur Rock Art Site**

Karikkaiyur, known locally as Porivarai, ranks among the most significant prehistoric rock art sites in the Nilgiri Hills. It lies near Karikkiyoor village, about 40 km from Kotagiri, and can be reached only on foot, along a trekking path of nearly 2 km through dense forest. The shelter sits on the eastern slopes of the Nilgiris, part of the Western Ghats, on a steep cliff face above the point where the Moyar and Bhavani rivers meet. Such a position points to a place of some strategic value, close to an important ecological and movement corridor (Sridhar, 2005, p. 35). The rock mass itself is imposing, standing roughly 300 feet high and extending about 500 feet in length. The painted shelter is smaller, at around 53 metres long and 15 metres high, with most of the paintings on the eastern face (Sridhar, 2005, p. 36). This orientation brings morning sunlight onto the surface while limiting exposure to heavy rain and weathering, a factor that has probably helped the paintings survive. Dense forest, thorny scrub, animal habitats, and large hanging beehives surround the shelter, and the site’s remoteness may have protected the panels for a very long time.

The panel is regarded as one of the longest prehistoric rock art compositions recorded in Tamil Nadu, notable both for the extent of the painted surface and for the density of its figures. Roughly 500 individual figures have been counted, some human and some animal. The animals include bulls, wild boars, deer, elephants, monkeys, birds, and a mongoose, which shows how closely the painters observed the forest

fauna around them. Series of bulls and apparent bullfights are among the most striking scenes, and they may relate to ritual activity, social gatherings, or the symbolic importance of cattle in pastoral life. The human figures are shown in lively poses (Figure 4), in scenes that could represent hunting, ritual performance, or daily routines. In one scene a person rides an animal, and in another a person carries one, which may indicate a successful hunt or the keeping of domestic animals. Other figures appear to hold weapons, a feature that may refer to conflict, protection, or social identity.

A few scenes have been read as snake fights. Their meaning is uncertain, and they may refer to myth, ritual symbolism, or encounters with wildlife that were part of life in the forest. The range and complexity of the imagery suggest that Karikkaiyur was more than a shelter and probably held cultural and symbolic importance within the Nilgiri landscape. Its large painted surface, the number of figures, and its commanding view over the river valleys all support the idea that it served as a gathering place or ceremonial location for prehistoric communities. The site also shows how closely human activity was tied to the Nilgiri environment, since its ecological setting, visibility, and natural protection all appear to have shaped how it was used (Nanthakumar, 2019).

#### **Jakkanarai–Kakaikundu Rock Art Site**

Kakaikundu, near the settlement of Jakkanarai, is another significant prehistoric rock art locality in the Nilgiri Hills (Figure 3). It lies at an altitude of about 1210 metres above mean sea level, on a sheltered rock plateau known locally as “Tholiki Parai.” From this high position the site looks over the valley of the Bhavani River and the forested landscape around it. The rock façade bearing the paintings measures roughly 900 cm by 600 cm, and the painted area covers about 600 cm by 300 cm (Ramasamy & Nalliyappan, 2023). The shelter faces south, an orientation that may have helped preserve the paintings by shielding them from prevailing winds and seasonal rain. The art consists mainly of painted motifs, including human-like figures and symbolic forms. Some of the figures are elongated or stylised and occasionally resemble raindrops. These shapes have been read as symbolic expressions of natural forces or supernatural beings connected to rainfall and environmental balance, which suggests a possible ritual dimension tied to ecological cycles and the changing seasons of the forest.

Ethnographic accounts from the Kurumba community add another perspective on the site’s cultural significance. According to local tradition, certain paintings at Kakaikundu were made by ancestral or divine beings with the power to bring rain and keep the forests fertile. In times of drought or poor harvests, members of the community are reported to have visited the site to perform rain rituals. These involved painting new motifs or renewing existing ones while calling on a rain deity, in the hope of restoring rainfall, agricultural productivity, and ecological balance. Such practices show how rock art, ritual, and environmental processes were seen as linked, and the anthropomorphic figures and symbolic motifs at the site may reflect similar beliefs about water, fertility, and seasonal change.

These traditions cannot be taken as direct evidence of who originally created the prehistoric paintings. They do, however, offer valuable insight into how rock art sites continue to be woven into local cultural and ecological belief systems. Comparable customs have been noted at Vellerikombai, where local communities reproduce ancient rock art designs on temple walls during certain festivals, which suggests some continuity in the symbolic use of visual motifs in ritual settings. Together, the links between rock art imagery, rain-invoking rituals, and environmental belief show the lasting role of artistic expression in shaping relationships between communities, landscape, and ecological cycles in the Nilgiri region.

## Discussion

The spatial distribution of rock art sites in the Nilgiri Hills suggests that the images were not created randomly but were closely linked to patterns of movement, resource access, and the way people perceived the landscape. Painted rock shelters are frequently found along natural corridors such as valleys, forest margins, and hill slopes, which would have eased seasonal mobility. These locations would have mattered particularly to the pastoral and foraging communities of the region, including groups such as the Kurumba, whose traditional subsistence relied on forest resources, hunting, and small-scale pastoralism.

In this context, rock art may have served as a form of cultural marking within the landscape, signalling routes, ritual spaces, or socially meaningful places. Rather than being purely aesthetic, these images probably contributed to the construction of social memory and territorial awareness. María Cruz Berrocal and Diego Gárate propose a similar reading, arguing that rock art traditions should be understood as historically contingent practices embedded in specific social and economic conditions. In their view, rock art often emerged where communities were becoming more involved in landscape management and territorial negotiation. A comparable relationship between ritual monuments and landscape organisation has been identified at Hire Benakal, where research by Andrew M. Bauer and Mudit Trivedi shows that megalithic structures were deliberately placed near important ecological resources such as water retention features. These arrangements produced what the authors call “powerscapes,” in which monuments, environmental resources, and social authority were materially intertwined. Taken together, these studies show that both rock art and megalithic construction played an active part in shaping cultural landscapes by organising space, reinforcing territorial claims, and embedding social relations in the physical environment.

The placement of rock art sites within the Nilgiri landscape can also be read through broader frameworks that treat rock art as part of the construction of social landscapes. Some scholars suggest that rock art helped create “powerscapes,” in which visual imagery marked territorial claims and organised social space (Berrocal & Gárate, 2023). From this perspective, the choice of prominent rock shelters or strategic landscape positions may reflect not only aesthetic preferences but also social and political meanings embedded in the landscape. N. Nihildas applied a similar approach to rock art sites in the Anjunad Valley, analysing the distribution of painted shelters in relation to megalithic monuments and tribal settlements. This kind of analysis offers a clearer understanding of how rock art operated within the socio-economic and ritual landscapes of past communities.

Ethnographic accounts also show clear links between rock art motifs and the way local communities made a living. The Kurumba traditionally hunt animals such as deer and wild pigs with nets, nooses, and traps. Very similar images, including animals caught in loops and scenes of hunting, appear in several rock paintings in the Anjunad Valley. This suggests that the paintings may record everyday subsistence as well as the symbolic side of hunting and community identity (Nihildas, 2014). James Wilkinson Brecks also wrote about Kurumba hunting and household art, and his observations support the idea that art and food-gathering were closely bound together in the life of these communities (Brecks, 1873).

## Contemporary Cultural Continuities

Traces of prehistoric rock art can still be seen in the work of some present-day artists from Indigenous communities in the Nilgiri Hills. R. Krishnan, an artist from the Alu Kurumba community, is a good example of how old visual traditions continue to inspire new art. His paintings drew on motifs from rock art sites in the region, including Jakkanarai and Vellerikombai. Working with natural pigments made from

bark, leaves, and earth, he recreated stylised human and animal figures that closely resemble those found in Nilgiri rock art. In recognition of his efforts to preserve and revive Kurumba artistic traditions, he was posthumously awarded the Padma Shri in 2026. Present-day art cannot be directly linked to the people who made the prehistoric paintings. Even so, his work shows how ancient imagery continues to shape cultural identity and artistic expression among Nilgiri communities.

## Conclusion

This study looked at the spatial and environmental setting of selected rock art sites in the Nilgiri Hills, focusing on Vellerikombai, Karikkaiyur, and Kakaikundu. By examining how the sites relate to nearby river valleys, forest zones, water sources, and rock formations, it shows that their placement was not random. Instead, it was closely tied to how people used the landscape and made a living from it. The findings suggest that prehistoric communities were deeply engaged with their ecological surroundings and carried those relationships into their art.

One of the main observations is the link between rock art sites and river valleys. Several sites lie close to the Moyar and Bhavani rivers, which suggests that these valleys served as natural corridors for movement through the Nilgiri landscape. They would have offered accessible routes across the otherwise rugged terrain, making it easier to travel between the upland plateaus and the lowlands below. Such corridors were probably important for seasonal migration, hunting trips, and contact between neighbouring groups. Rock shelters overlooking these valleys may have served as resting places, lookout points for hunting, or landmarks of social importance within wider patterns of movement across the landscape.

Access to water throughout the year also appears to have been a factor in siting the village. All rock art shelters studied here are located near rivers, streams or natural springs, which would have been a reliable source of supply for people and animals. In a mountainous country such as the Nilgiris, permanent water would have been a major consideration for temporary settlement or seasonal habitation. These places would also have attracted wildlife and supported dense vegetation, offering good conditions for hunting and gathering. The close association between rock art sites and water is thus an expression of the practical and ecological concerns that influenced the way people occupied the landscape. The surrounding forests also shaped the cultural landscape in which these images were made. The high-altitude forests of the Nilgiris are known for their biodiversity and their variety of game animals. Environments this rich in wildlife would have supported hunting-based ways of living, and they may help explain why animals and hunting scenes appear so often on the panels. Bulls, deer, and wild boar at sites like Karikkaiyur and Vellerikombai suggest that wildlife mattered to these communities both as a resource and as a symbol. The images may reflect everyday subsistence as well as ritual activity connected to hunting. The geology of the sites adds to this picture. Natural shelters formed by steep rock faces, overhangs, and large boulders offered protected spaces for temporary habitation and other activities. They gave shelter from the weather and also provided smooth rock surfaces well suited to painting and to preserving the paintings. Their position near water, forest resources, and routes of movement suggests that they may have been seasonal stopping points, used during hunting trips or while people travelled across the landscape. Ethnographic traditions among Indigenous communities in the Nilgiris offer further help in interpreting the symbolic side of rock art. Ritual practices among groups such as the Kurumba and the Irula show how closely ritual, wildlife, and artistic expression were connected in forest-based societies. Kurumba ritual painting and the Irula Boar Dance, for example, show that animals and hunting still carry cultural meaning today. Taken together, the findings suggest that rock art in the Nilgiri region should be seen not as isolated artistic

expression but as part of a wider cultural and ecological landscape. The clustering of sites near river valleys, water sources, forests, and natural shelters indicates that these places were chosen carefully, with movement, subsistence, and social life in mind. Rock art therefore reflects how prehistoric communities interacted with their environment and expressed their relationship with the landscape through symbols.

In conclusion, the rock art sites of the Nilgiris reveal a close relationship between people, ecology, and cultural expression. Their placement in particular environmental settings suggests that they were part of a living cultural landscape shaped by movement, the use of resources, and ritual. Future research that combines detailed landscape analysis, archaeological evidence, and ethnographic perspectives could improve understanding of how these sites functioned within the long-term cultural history of the region.

This study offers some insight into the spatial and ecological settings of selected rock art sites in the Nilgiri Hills, but several areas need further work. One is the use of Geographic Information Systems (GIS) to map the distribution of sites in relation to river valleys, elevation, vegetation zones, and likely movement routes. GIS analysis can reveal patterns that field observation alone may miss, such as clusters of sites along travel corridors or close to ecological resources. It would also give a more systematic basis for interpreting how prehistoric communities organised their activities across the landscape.

Another area is detailed motif analysis. Comparing motifs across many sites could help identify recurring themes, stylistic similarities, and regional differences. Careful documentation of animal figures, human-like figures, geometric patterns, and hunting scenes may allow a clearer picture of symbolic traditions and possible differences in age within the rock art. Motif analysis may also show links between the imagery and subsistence, ritual, or ecological knowledge tied to the surrounding landscape.

Future work should also give priority to systematic archaeological surveys that locate and record additional sites. At present, most interpretations rest on a small number of well-known sites such as Karikkaiyur and Vellerikombai, yet many more shelters probably remain undocumented in remote forested areas. A larger database of recorded sites would give a broader foundation for studying spatial patterns, cultural landscapes, and variation in rock art traditions. It would also help avoid overgeneralising from limited evidence and lead to a more representative understanding of the region's archaeological record.

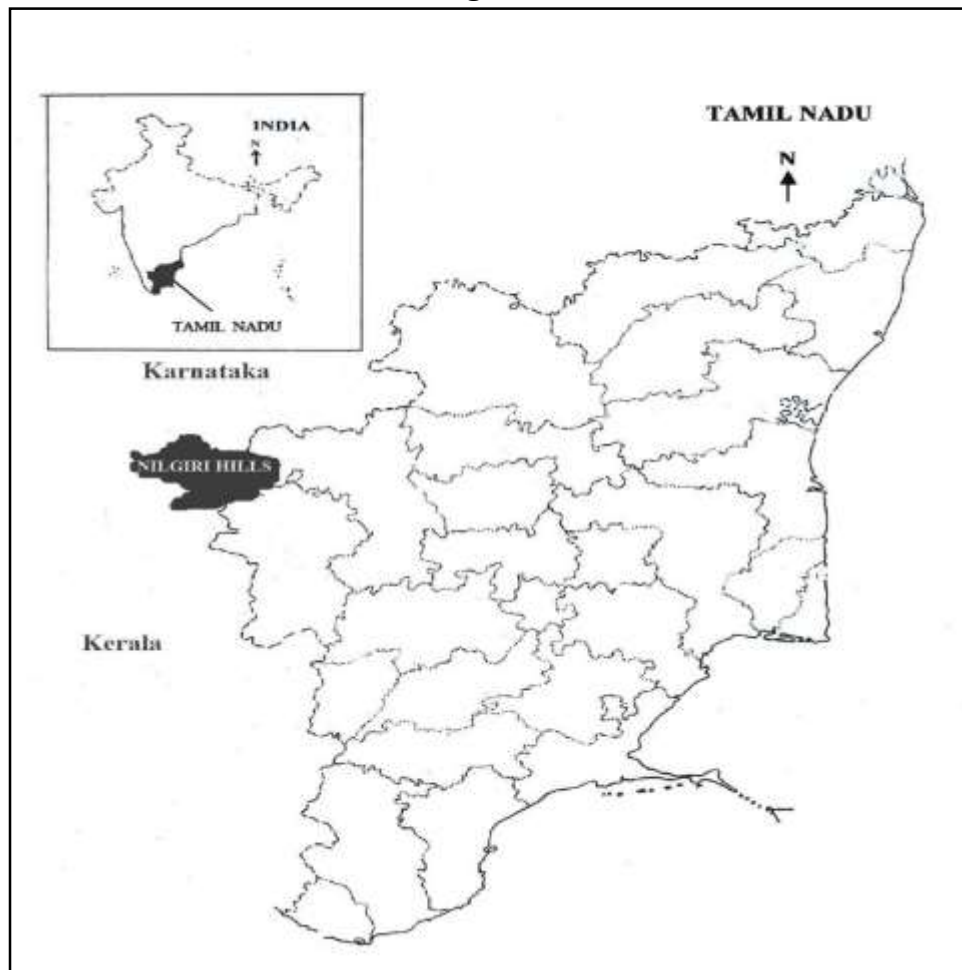
An interdisciplinary approach would improve the interpretation of Nilgiri rock art. Archaeologists, anthropologists, ecologists, geographers, and ethnographers working together could give a fuller picture of how prehistoric communities lived with their environment. Ethnographic studies among Indigenous groups such as the Kurumba and the Irula can shed light on ritual practices, ways of making a living, and ecological knowledge that help explain the imagery. Ecological and landscape studies, in turn, can clarify the environmental conditions that shaped settlement and movement.

These recommendations matter all the more given the wider challenges facing rock art research in India. Although many rock art sites exist across the country, including in southern regions such as the Nilgiris, systematic scientific analysis remains limited. Many sites have been recorded through descriptive surveys, but few studies use more advanced methods such as spatial modelling, pigment analysis, dating techniques, or digital documentation. As a result, the age, cultural affiliations, and broader meaning of many rock art traditions are still poorly understood. Closing this gap will require scientific methods to be used alongside traditional archaeological approaches.

In this context, the present study adds to ongoing discussions by showing why rock art should be studied within its ecological and landscape setting. By tracing the relationship between rock art sites and features such as river valleys, wildlife-rich forests, and year-round water sources, it underlines the role of landscape

in shaping cultural expression. It also points to the need for wider regional investigations that include more sites, more detailed analyses, and interdisciplinary perspectives. Work of this kind would do much to advance rock art research in South India and place the Nilgiri sites within a broader archaeological and cultural framework.

## Figures



**Location of Nilgiri district within Tamil Nadu and India.**

**Figure 1: Map of Tamil Nadu Showing Location of the Nilgiri Hills (Source: Alam, 2014)**

## Vellerikombai Rock Art Site

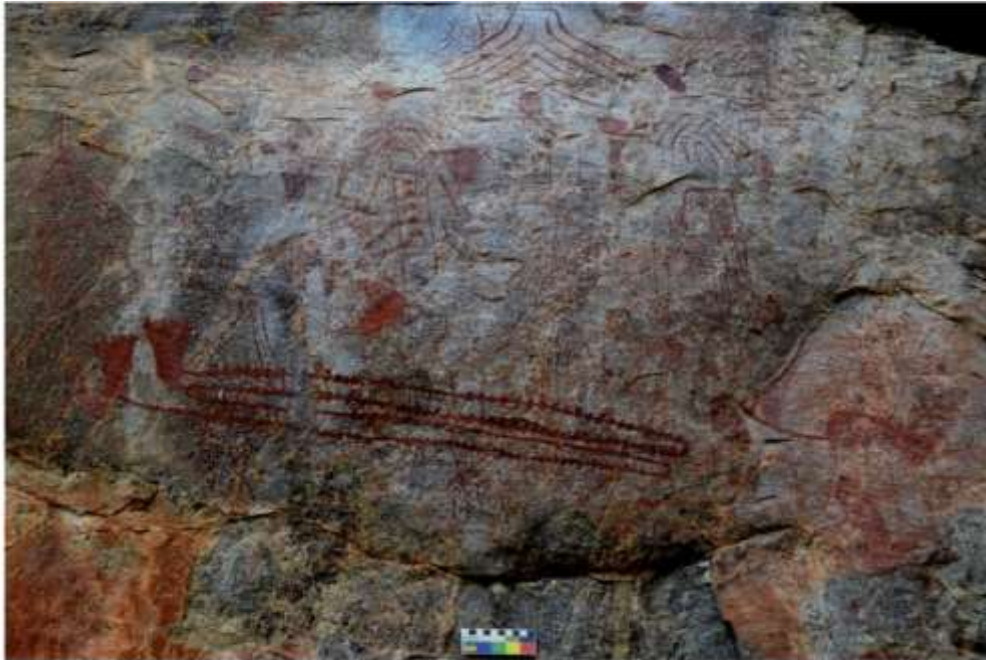


Figure 5: Picotographs in Red- Ochre Colour

Figure 2: Prehistoric Rock Art at Velaricombai Depicting Ancient Lifestyle and Fauna

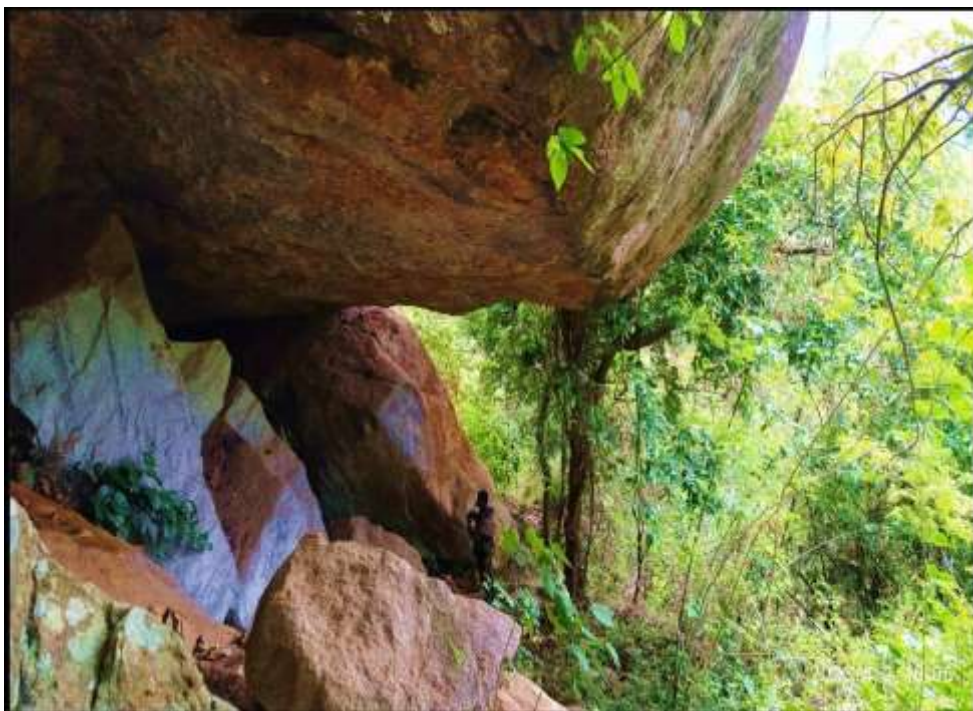


Figure 3: Rock Art Panel at Jakkanarai-Kakaikundu Displaying Anthropomorphs and Raindrop Motifs (Source: Ramasamy & Nalliyappan, 2023)



## Celebration with the playing of the drum

**Figure 4: Narrative Hunting and Ceremonial Scene from Karikkaiyur Showing Human Figures, Weapons, and Forest Wildlife (Photo: Veludharan, 2019)**

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