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Cultural Landscape and Heritage Ecology of Kottayam District, Kerala: An Integrated Field-Based Study

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***Abstract*— The cultural landscape of Kottayam district in central Kerala represents a long-standing interaction between ecological systems and human cultural practices. This study examines how sacred groves, agrarian systems, water management structures, settlement morphology, and ritual spaces collectively shape the heritage ecology of the region. Based on field observation, village-level documentation, informal interviews, and spatial mapping conducted during 2024-2025, this research identifies patterns of environmental adaptation embedded in local traditions. The findings reveal that cultural beliefs, agricultural knowledge, and spatial organization historically contributed to ecological balance. However, rapid land-use transformation, urban expansion, and monoculture plantation practices are altering this equilibrium. The study proposes a framework for recognizing cultural landscapes as living ecological heritage systems rather than isolated monuments. By integrating field documentation with environmental interpretation, this paper contributes to sustainable heritage discourse and regional planning strategies.**

***Keywords*-- Cultural landscape, Heritage ecology, Sacred groves, Agrarian ecology, Kottayam district, Landscape history, Environmental heritage**

I. Introduction

Cultural landscapes are not merely scenic environments but are records of continuous interaction between communities and their surroundings. In Kerala, particularly in Kottayam district, ecological processes and cultural practices have evolved together for centuries. Rivers, midland slopes, laterite hills, wetlands, and agrarian fields are not only natural features; they are embedded within ritual practices, settlement planning, and livelihood systems.

The present study approaches Kottayam district as a living cultural landscape shaped by ecological adaptation and social memory. Rather than focusing on isolated monuments, this research examines broader spatial relationships: sacred groves within settlements, temple tanks linked to irrigation, agricultural cycles tied to ritual calendars, and burial spaces integrated into land-use patterns.

The primary objectives of this study are:

- To document major components of the cultural landscape in selected parts of Kottayam district.
- To analyze the ecological logic underlying traditional practices.
- To assess contemporary transformations affecting heritage ecology.
- To propose a sustainable framework for cultural landscape preservation.

II. Study Area And Environmental Setting

Kottayam district lies between the Western Ghats and the Vembanad wetland system. The district includes three ecological zones: highland slopes in the east, midland undulating terrain, and low-lying paddy fields toward the west. Major rivers such as the Meenachil and Manimala influence settlement distribution and agricultural productivity.

The region receives heavy monsoon rainfall, making water management central to survival. Laterite soil dominates upland areas, while alluvial deposits characterize riverine plains. These environmental factors historically shaped architecture, cropping patterns, and settlement morphology.

III. Methodology

This research is based on primary field documentation carried out in fifteen villages across different ecological zones of Kottayam district. The methodology included: Direct field observation and photographic documentation, Mapping of sacred groves, temple tanks, and traditional water bodies, Informal interviews with local residents and temple custodians, Examination of land-use patterns through satellite imagery, Review of historical records and local chronicles.

Each site was documented with notes on vegetation type, spatial layout, usage patterns, and visible transformations. The field data were organized into thematic categories for analysis.

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IV. Components Of The Cultural Landscape

Sacred Groves (Kavus)

In Kottayam district, several villages still preserve small sacred groves (kavu) that are linked with serpent worship or local guardian deities, and customary rules prevent cutting trees or disturbing the soil. At Arpookara near Kumarakom, a serpent grove attached to an old family shrine retains dense vegetation including bamboo clusters, wild turmeric, and medicinal shrubs, and residents mention that the ground inside remains cool and moist even during the dry months when nearby homestead gardens dry out. In the Ettumanoor–Athirampuzha area, a small grove maintained beside a Bhagavathi shrine shelters large trees such as mango, jackfruit and peepal, and local people observe that birds, owls and frogs are more commonly seen there than in surrounding cultivated lands. Similarly, in villages near Poonjar and Bharananganam, serpent groves situated on laterite mounds contain native climbers, ferns and shade-loving herbs, and small springs or damp patches appear at their base after the monsoon, which villagers associate with groundwater recharge. These groves also act as ritual centres: annual offerings during Ayilyam days and temple festivals draw community participation, reinforcing shared identity while unintentionally conserving native vegetation and small fauna.

Water Bodies and Ritual Ecology

In many parts of Kottayam district, temple ponds, canals and adjoining paddy fields operate as a single water-management system rather than separate structures. At Ettumanoor, for example, the Mahadeva temple tank lies slightly below the road level and collects monsoon runoff, and villagers observe that overflow water moves through narrow channels into nearby low-lying fields, preventing waterlogging around the settlement. A comparable pattern exists in the Vaikom region, where the temple tank and surrounding wetlands remain filled for most of the year; during heavy rains the excess spreads into adjacent paddy lands and acts as a natural flood buffer, and farmers traditionally began sowing only after the temple authorities opened the sluice passage, linking ritual practice with agricultural timing. In Pala and neighbouring midland villages, small shrine ponds gather rainwater from laterite slopes and were once used for everyday domestic activities, while deeper sections were kept for ritual purification before festivals. Elderly residents also recall that the water level in these ponds was treated as an agricultural indicator, a full pond in the Malayalam month of Kanni (September–October) being regarded as a sign of a favourable cropping season.

Agrarian Landscape

Historically, villages across Kottayam followed mixed cropping rather than single-crop cultivation. In the lowland areas of Kumarakom and Kainakary border regions, paddy fields were surrounded by coconut groves, with plantain and colocasia grown along the bunds; farmers explain that coconut roots stabilized the embankments while the shade helped retain soil moisture during summer. In the midland areas near Pala and Kidangoor, small homesteads typically combined tapioca, pepper vines climbing on arecanut trees, jackfruit, and seasonal vegetables, creating a layered vegetation cover that supported birds, frogs and pollinating insects. Older cultivators recall that even after harvest, paddy stubble and canal edges supported fish and crabs, which were collected for household consumption. By contrast, in regions such as Erattupetta and parts of Kuravilangad where rubber plantations expanded from the 1980s onward, fields that once held multiple crops were converted into uniform rows of rubber trees. Field visits show sparse undergrowth beneath the rubber canopy, drier surface soil during summer months, and noticeably fewer birds and amphibians compared with nearby mixed gardens. Farmers also note that wells in long-standing rubber plots tend to show reduced seasonal recharge, whereas wells near traditional mixed homesteads retain water for a longer period after the monsoon.

Settlement Morphology

Traditional houses were oriented based on topography and wind direction. Courtyard systems allowed ventilation and rainwater harvesting. Wells were positioned strategically within compounds. This spatial planning reflects ecological sensitivity and climatic adaptation.

Modern construction practices increasingly ignore these environmental considerations, leading to higher energy consumption and water management issues.

Memorial and Burial Spaces

In several areas of Kottayam district, ancestral memorial stones and burial spaces are intentionally located on elevated ground or at the edges of settlements, symbolically marking both territory and lineage. In midland villages around Pala and Ramapuram, old Christian family cemeteries are often situated beside ancestral homes on small hillocks, overlooking paddy fields and homestead gardens, indicating a continuing connection between the living household and earlier generations. In parts of Vaikom and Kaduthuruthy, small memorial crosses or stone slabs stand near property boundaries or junctions, remembered locally as markers of earlier settlement families.

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Similarly, near Poonjar and Erattupetta, traditional community burial grounds are placed on laterite ridges slightly away from cultivated land, preserving them from seasonal flooding while maintaining visibility within the landscape. Though modest in size, villagers visit these sites during annual commemorations and feast days, and the repeated rituals reinforce a shared memory of place and ancestry, linking land ownership, family history and cultural identity across generations.

V. Analysis

Heritage Ecology and Sustainability The integration of sacred groves, water systems, agrarian diversity, and settlement planning indicates a historically sustainable ecological model. Cultural practices acted as regulatory mechanisms for environmental conservation. Sacred taboos limited exploitation. Ritual obligations ensured maintenance of water bodies. Crop rotation-maintained soil productivity.

However, contemporary pressures such as land fragmentation, urban expansion, road construction, and commercial plantations disrupt these systems. Sacred groves are shrinking, temple ponds are filled for construction, and traditional cropping systems are declining.

To bridge this transition, heritage conservation must expand beyond monument protection to include landscape-scale ecological preservation.

VI. Conclusion

The study demonstrates that the cultural landscape of Kottayam district is not merely a collection of historical sites but a living system shaped by long interaction between environment and society. Sacred groves act as small biodiversity reservoirs, traditional water bodies support agriculture and domestic life, settlement layouts respond to terrain and seasonal rainfall, and memorial spaces preserve collective memory tied to land. Each element functions individually, yet their real importance lies in their interconnection: ecological practices were embedded within everyday cultural routines, allowing communities to use natural resources without completely exhausting them. In this sense, the district's heritage is ecological as much as historical.

At the same time, recent changes-expansion of monoculture plantations, reduction of wetlands, neglect of temple ponds, and decline of customary practices-are gradually weakening this integrated relationship. When water channels are filled, groves reduced, or homestead diversity replaced by uniform cultivation, the loss is not only environmental but also cultural, affecting local knowledge systems and community identity. The findings therefore suggest that conservation cannot be limited to protecting individual monuments or buildings. Cultural landscapes must be understood as interconnected heritage zones where ecological processes, agricultural practices, and ritual traditions operate together.

Sustainable development in the region requires documenting traditional ecological knowledge, restoring small water systems, encouraging mixed cultivation, and protecting remaining sacred groves through community participation. Rather than viewing tradition and development as opposing forces, planning strategies should integrate local practices with modern environmental management. Recognizing the cultural landscape of Kottayam as a dynamic heritage ecology will help maintain both environmental stability and cultural continuity, ensuring that future generations inherit not only physical remains but also the living relationship between people and their environment.

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