ISSN Print: 2789-0716 Online: 2789-0724
Research on Art Design − 2025, 1(1)
https://doi.org/10.35534/rad.0101002

An Ecological Aesthetics Study on the Adaptation of Jingchu Patterns in Park Public Spaces

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Abstract: Against the backdrop of rapid urbanisation, the cultural significance and ecological quality of public park spaces are receiving increasing attention. As a visual carrier of regional culture in the middle reaches of the Yangtze River, the artistic value and ecological wisdom of Jingchu patterns urgently require exploration. This paper aims to investigate how design translation can integrate Jingchu patterns into park public spaces, thereby enhancing the cultural distinctiveness and ecological aesthetic value of these locations. The research employs a combined methodology of literature analysis, comparative case studies, and design practice: first, it traces the historical lineage and typological characteristics of Jingchu patterns; subsequently, it analyses the manifestations of ecological aesthetics within park spaces; and finally, it proposes three core translation principles—'cultural inheritance, ecological harmony, and aesthetic innovation'—while exploring specific design strategies such as simplification, reconstruction, and material transformation through mediums including paving, landscape fixtures, and plant arrangements. Findings reveal that translated patterns not only strengthen regional cultural identity but also enhance biodiversity support functions through the integration of ecological materials and natural forms. Practice demonstrates that this translation pathway revitalises traditional cultural vitality while creating public space experiences that blend artistic and ecological qualities for citizens, offering fresh perspectives on empowering urban ecological development through regional culture.

Key words: Jingchu motifs; Park public spaces; Translation design; Ecological aesthetics; Cultural heritage

1 Introduction

With accelerating urbanisation, the design quality of public park spaces has garnered significant attention. Jingchu motifs, imbued with profound historical and cultural significance, offer rich material for contemporary landscape design(Tu Y X & Li Z, 2023). Addressing the current issues of regional cultural deficiency and the disconnect between ecology and humanism in park design necessitates exploring pathways to integrate traditional and modern ecological concepts. Ecological aesthetics emphasises the symbiosis between humanity and nature(Huang Y et al., 2025), providing a theoretical perspective for harmonising artificial and natural systems(Zhao Z D & Xiao D R, 2024).

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Article Citation: Zhao, Y. J., Xiang, T. Y., Yang, Y. (2025). An Ecological Aesthetics Study on the Adaptation of Jingchu Patterns in Park Public Spaces. *Research on Art Design, 1*(1), 11-22.

This paper focuses on the translational practice of Jingchu motifs within park spaces, aiming to: systematically examine their cultural DNA and aesthetic characteristics; elucidate the intrinsic design requirements of ecological aesthetics; and construct a translational pathway that balances cultural heritage with ecological sustainability. Integrating perspectives from semiotics, ecological design studies, and environmental aesthetics, it analyses the relationship between motif forms and ecological value, while conducting empirical investigations into the adaptability and ecological benefits of motifs in paving, small features, and greenery(Zeng Y & Chen B, 2024).

The anticipated outcome is an ecologically aesthetic-driven methodology for translating Jingchu patterns, transcending superficial ornamentation to distil ecological wisdom such as natural imagery and cyclical structures(Yu L & Zhang X X, 2022), thereby enhancing spatial biodiversity support and microclimate regulation functions. This approach promotes the living transmission of regional culture, strengthens civic cultural identity and ecological awareness, achieving a three-dimensional unity of 'cultural symbolism—ecological function—aesthetic experience'.

2 An Overview of Jingchu Patterns

2.1 The Historical Origins of Jingchu Patterns

The patterns of Jingchu are rooted in the ancient civilisation of the middle Yangtze River basin, their historical trajectory clearly reflecting the accumulation and evolution of regional culture. By the Shang and Zhou dynasties, the motifs of this region had already developed distinct local characteristics, most notably the abstracted, mystical phoenix bird totem. This represents not only a remnant of primitive religious totem worship but also profoundly embodies the Chu people's unique cosmology and spiritual beliefs, characterised by reverence for the phoenix and veneration of fire(Yu L & Zhang X X, 2022). The motifs of this period feature exaggerated forms, fluid lines, and dynamic movement, establishing the romantic and fantastical tone characteristic of Jingchu art.

From the Han and Tang dynasties onwards, with the flourishing Silk Road and deepening cultural exchanges, Jingchu patterns retained their indigenous character while actively assimilating artistic influences from the Central Plains and the Western Regions. Plant motifs (such as scrollwork and cornelian cherry patterns) and auspicious bird-and-beast designs proliferated, their forms tending towards realism and complexity, with compositions growing fuller and more harmonious. This evolution clearly reflected rising social productivity, deepening multi-ethnic cultural integration, and a shift in aesthetic tastes from mysticism towards secularism and ornamentation. Patterns recorded in the Ming dynasty text Ru Shui Jin Pu (Patterns of Headwear from the Ru River) attest that by this period, Jingchu motifs had developed into a highly stylised decorative language, widely applied across various utilitarian objects(Niu L & Zhang Q Y, 2024).

From the Ming and Qing dynasties through to the modern era, Jingchu motifs continued to flourish within the realm of applied arts, finding significant expression in embroidery (such as Han embroidery), lacquerware, and architectural decoration. The subject matter of these patterns grew increasingly rooted in folk life, with auspicious motifs like flowers, fruits, and opera characters becoming prevalent. The use of colour became more intense and vibrant, reflecting the aesthetic tastes of the urban populace and a secular celebration of life(Fu L & Li Y H, 2023). Despite challenges to their traditional contexts during modernisation, the core principles of form, aesthetic imagery, and cultural DNA have persisted resiliently, serving as an enduring wellspring of inspiration for contemporary design.

Tracing their evolution, Jingchu patterns have been driven by dual forces: on one hand, the intrinsic dictates of

deep-rooted cultural genes shaped by the region's natural environment, primitive beliefs, and Chu shamanic traditions; on the other, profound external influences such as shifting political-economic landscapes, technological innovations, and cultural exchanges across dynasties. This paper contends that their enduring vitality stems precisely from this adaptive quality: rooted in regional cultural soil while continually renewing itself. Future preservation and innovation must involve a deeper grasp of the regional cultural codes embedded within these patterns, achieving creative transformation within the context of the new era.

2.2 Types and Characteristics of Jingchu Patterns

The Jingchu motifs are rooted in the regional civilisation of the middle Yangtze River basin, their forms and compositions profoundly reflecting the ancient Chu people's perspectives on nature and the cosmos. This paper systematically examines their principal types and core characteristics within the theoretical framework of cultural semiotics and artistic morphology, laying a cognitive foundation for subsequent ecological translation in public spaces.

2.1.1 Core Type

The Jingchu decorative motif system primarily encompasses three major categories: Firstly, animal motifs, most notably represented by phoenix designs. These typically feature S-shaped curves and dynamic postures with heads raised and wings spread, possessing sharp beaks and tail feathers rendered as flowing flames or cloud-like vapours, embodying potent vitality and ascending imagery. Dragon motifs and coiled chi designs, conversely, are predominantly depicted in sinuous, intertwined forms, emphasising strength and mystique. Secondly, botanical motifs centre on scrollwork and floral designs (such as cornelian cherry and lotus), often rendered in abstract, stylised forms. Branches and leaves twist and coil in continuous, unbroken structures, creating a rhythmic linear order. Thirdly, geometric patterns encompass rhombic motifs, cloud-and-thunder designs, scrollwork, and continuous dot patterns. These exhibit rigorous structure and regular repetition, reflecting the Chu people's abstract expression of cosmic order.

2.1.2 Morphological characteristics

In stylistic expression, Jingchu motifs commonly employ exaggerated distortion and simplified reconstruction techniques. Animal forms transcend physiological realism by accentuating specific features—such as the phoenix's tail feathers or the dragon's coiled form—and integrating botanical elements to create composite imagery that transcends nature. Botanical patterns, meanwhile, achieve a dynamic sense of growth and sprawl through the elongation, distortion, and interweaving of lines. Compositionally, they favour dense, balanced arrangements with fluid continuity. Motif units are often tightly arranged in symmetrical, two-way or four-way continuous patterns, forming visually rich decorative surfaces. Simultaneously, flowing curves dissolve boundaries, constructing an endless visual cycle.

2.1.3 Colour and Ecological Attributes

The colour schemes of Jingchu motifs exhibit striking contrasts and symbolic significance. Archaeological remains and textual records indicate that traditional colour palettes favoured highly saturated hues such as cinnabar red, jet black, azurite blue, and malachite green, creating a powerful visual impact. The application of colour was not merely decorative but intertwined with totemic worship and the concept of the Five Elements. Crucially, the very forms of these patterns profoundly reflect their symbiotic relationship with the natural environment. Whether capturing the spirited flight of phoenix birds, mimicking the vital tension of plants through scrollwork, or abstractly expressing natural

phenomena through cloud-and-thunder motifs, they embody the Chu people's creative philosophy of 'observing objects to capture their essence.' Their intrinsic structures resonate with the rhythms of natural ecology(Zhao Y & Liu Y J, 2022).

2.2 Summary

The Jingchu pattern system, with its distinctive animal, plant and geometric motifs, alongside principles of exaggerated deformation, dense yet balanced composition, and fluid continuity, constructs a symbolic system possessing both visual tension and cultural depth. Its core value lies not merely in decorative aesthetics but in the profound understanding of natural forms, their abstract sublimation, and the manifestation of intrinsic ecological logic inherent in their generative process. This intrinsic ecological aesthetic gene provides an indispensable foundational prototype and cultural rationale for its revitalisation and translation within contemporary park public spaces. This paper emphasises that future translation practices should delve deeply into and transform the natural order and sense of life's rhythmic pulse underlying these forms.

3 Public Spaces in Parks and Ecological Aesthetics

3.1 The Functions and Characteristics of Public Spaces in Parks

As a vital component of the urban ecosystem and a central venue for residents' daily activities, public spaces within parks fulfil multiple functions and exhibit distinct characteristics. This article focuses on analysing their core functions and fundamental attributes to clarify their foundational role within the urban environment.

From a functional perspective, the primary purpose of park public spaces is to fulfil residents' recreational needs. They provide a natural environment removed from urban clamour, offering respite from stress. Individuals can achieve physical and mental relaxation and restoration through activities such as walking, quiet contemplation, observing nature, or engaging in light physical exercise, serving as a 'pressure valve' for fast-paced urban living. Social interaction serves as the wellspring of its vitality. The open nature of parks inherently fosters interpersonal connections, providing an ideal setting for informal gatherings, neighbourly exchanges, community events, and even festive celebrations across diverse age groups and backgrounds. It stands as a pivotal platform for cultivating community identity and sustaining social bonds. Crucially, their ecological function is paramount as the "urban green lungs", parks play an irreplaceable role in regulating local microclimates (such as cooling and humidifying), conserving water sources, sequestering carbon and releasing oxygen, reducing noise pollution, and providing habitats for wildlife. They serve as pivotal nodes in maintaining urban biodiversity and ecological equilibrium.

In terms of characteristics, openness constitutes the most fundamental attribute of parks as public spaces. Typically accessible free of charge or at minimal cost, they eliminate barriers based on socioeconomic status, embodying the shared and inclusive nature of public resources and serving as a vital manifestation of urban equity. Closely linked to this is accessibility – the ease with which the public can reach and utilise the space. Key factors ensuring accessibility include advantageous geographical positioning (such as a reasonable service radius), convenient transport links (e.g., proximity to bus stops), and comprehensive barrier-free facilities. These directly influence a park's service effectiveness and utilisation rate. Only a highly accessible park can truly integrate into citizens' daily lives.

Park public spaces integrate recreational, social, and ecological functions, with openness and accessibility as

fundamental characteristics, forming the core support for urban living environment quality. Fully recognising and scientifically planning their functional layout and characteristic development holds foundational significance for enhancing residents' wellbeing, promoting social harmony, and maintaining urban ecological resilience. Future research may further focus on optimising the functional complexity and accessibility balance of park public spaces within ultra-high-density urban environments.

3.2 The Manifestation of Ecological Aesthetics in Park Public Spaces

Ecological aesthetics in park public spaces pursues the harmonious coexistence of humanity, nature and art, emphasising the unity of aesthetic experience and ecological processes to enhance environmental quality.

Landscape design adheres to the principle of form following ecology. Design must transcend formal beauty, integrating natural processes, topographical features and habitat requirements. Respecting the site's original texture, designers utilise or mimic natural topography and hydrological features (such as creating gentle slopes and constructing near-natural water bodies), striving to minimise artificial traces and achieve structural and functional unity. Spatial layout emphasises balanced openness and enclosure, fostering permeable integration. Material selection prioritises indigenous, renewable, or recycled resources, with textures and colours echoing the natural environment's palette(Zhou C M & Yuan F F, 2022). Landscape elements may abstractly reinterpret regional natural forms through artistic treatment.

Planting schemes adhere to ecological niche principles and community succession patterns, establishing multi-layered, multifunctional semi-natural communities dominated by native species. Regional vegetation structures (tree-shrub-grass-groundcover) are simulated, considering species symbiosis/competition dynamics and variations in light, water, and nutrient requirements. Scientific configuration creates rich seasonal variations and spatial layers, satisfying visual aesthetics while providing food and habitat for birds and insects, thereby enhancing biodiversity. Plant communities form dynamic "living landscapes", where growth and decay serve as living educational materials for ecological aesthetics.

Ecological aesthetics comprehensively elevates park quality: Firstly, it strengthens ecological services. Scientific design and configuration optimise microclimate regulation, rainwater infiltration and purification, air pollutant adsorption, soil improvement, and habitat provision. Secondly, it elevates aesthetic experience and sense of place. Transforming ecological processes and regional characteristics into perceptible aesthetic elements guides the public in appreciating nature's inherent order and the value of life(Shu H F & Shen H, 2022). Thirdly, it enhances spatial health and comfort. A favourable ecological environment alleviates stress and promotes physical and mental well-being.

Systematically applying ecological aesthetics to park creation represents a key pathway to resolving urban environmental challenges and achieving harmonious coexistence between humanity and nature. This approach points towards an ideal human habitat that is functionally sound, vibrantly alive, and possesses high aesthetic and health value.

4 Principles and Methods for Adapting Jingchu Motifs in Park Public Spaces

4.1 Principles of Translation

The translation of Jingchu motifs into park public spaces is not a mere replication of patterns, but rather a creative

transformation grounded in specific principles. This paper advocates that the process should strictly adhere to three core principles: cultural heritage preservation, ecological harmony, and aesthetic innovation. This ensures the translated outcomes both embody regional cultural context and align with the ecological attributes and aesthetic demands of modern parks, ultimately serving to enhance the quality of public spaces.

The principle of cultural inheritance forms the foundation of this translation. As pivotal visual symbols of Chu culture, Jingchu motifs carry profound connotations—such as the silk phoenix bird pattern embodying the spiritual beliefs and cosmology of the Chu people. Translation must involve a thorough analysis of the original cultural semantics, symbolic meanings, and formal rules, avoiding superficial appropriation or stripping of meaning. This necessitates rigorous academic examination and distillation of the patterns' historical context, mediums of use, and spiritual essence. Only then can the translated visual elements accurately convey the unique genetic code of Jingchu culture, preserving historical memory within contemporary public spaces. Translations divorced from their cultural origins forfeit their core value as regional identifiers.

The principle of ecological harmony constitutes a critical constraint for successful translation. As integral components of urban ecosystems, parks demand spatial designs that prioritise environmental carrying capacity and ecological wellbeing. Whether applied as paving textures, ornamental features, or wayfinding signage, the translation of Jingchu motifs must adhere to sustainability and eco-friendly requirements in material selection, craftsmanship, spatial layout, and maintenance. This necessitates prioritising indigenous, renewable, or low-environmental-impact materials. Their form and scale must harmonise with plant communities, water systems, and microclimates, avoiding disruption to natural ecological processes or increased environmental burdens. The principle of ecological harmony ensures cultural expression does not come at the expense of environmental health.

The principle of aesthetic innovation serves as the driving force for revitalising tradition. When applied to contemporary public spaces, rigidly replicating traditional patterns often fails to resonate with modern aesthetic sensibilities or functional spatial requirements. This paper argues that, grounded in a profound understanding of tradition, patterns must undergo creative transformation through formal refinement, structural reorganisation, or elemental deconstruction using modern design language. Such innovation does not subvert tradition but rather imbues it with contemporary resonance and visual dynamism through simplification, exaggeration, abstraction, or integration with modern materials and techniques. The objective is to create spatial art forms within park environments that possess cultural distinctiveness while resonating with contemporary users and evoking aesthetic pleasure.

The three principles of cultural inheritance, ecological harmony, and aesthetic innovation form an integrated framework that mutually supports and synergises, collectively guiding the effective translation of Jingchu motifs within park public spaces. Only by balancing these three dimensions can we achieve the living transmission of regional cultural heritage, the profound construction of ecological spatial aesthetics, and the substantive enhancement of public space quality. This establishes universally applicable guiding principles for similar cultural element translations.

4.2 Translation method

The translation of Jingchu motifs into public park spaces requires creative adaptation that respects their cultural heritage while integrating modern landscape vocabulary and ecological aesthetic principles. Drawing upon semiotic theory, this paper treats motifs as visual symbol systems conveying regional cultural information. The translation process is fundamentally a re-expression of symbolic meaning within specific spatial contexts and its ecological

adaptation. Three progressive methods are primarily employed:

Simplification: Refined extraction of ecological vocabulary. Addressing the intricate details within Jingchu motifs (such as the layered stitching techniques in Chu embroidery or the densely structured patterns on bronze ware), this paper advocates for purposeful morphological refinement. Simplification does not equate to mere reduction; rather, it involves distilling the most recognisable core characteristics (such as the phoenix's raised head posture or the rhythmic curves of scrollwork) while eliminating redundant decorative elements, thereby forming concise and dynamic visual units. This process aligns with ecological aesthetics' principles of "less is more" and resource efficiency, ensuring patterns possess clear visual communicative power within the park's large-scale spaces while reducing material consumption and environmental impact. In paving or low wall designs, the square framework of cloud-and-thunder patterns or the S-shaped skeleton of coiled dragon motifs are extracted and rendered through geometricised lines.

Transformation: Organic Integration of Natural Rhythm. To adapt static patterns to the park's dynamic, organic natural environment and human-scale perception, transformative treatment is crucial. This approach emphasises organically stretching, compressing, bending, or deconstructing and reconfiguring pattern forms based on spatial function and circulation routes. Traditional, rigidly continuous patterns (such as geometric rhombus motifs) are gently curved and extended to follow the sinuous paths of garden walkways or the contours of water bodies, making their forms appear as if naturally grown. This transformation embodies the ecological design principle of "form follows flow", liberating cultural symbols from rigidity. They establish rhythmic resonance with natural elements like topography, vegetation, and watercourses, creating vibrant spatial interfaces (e.g., curved balustrade carvings, undulating hedge patterns).

Reconstruction: Multi-dimensional Construction of Ecological Narratives. Building upon simplification and transformation, this paper advocates the spatial deconstruction. Breaking free from the flat compositional constraints of traditional patterns, these are deconstructed into independent units (such as solitary phoenix birds or isolated scrollwork buds). These units are then asymmetrically, scatter-pointed, three-dimensionally, or interactively rearranged according to the park's spatial sequence, thematic zoning, or specific node requirements. This reconstruction may be realised through contemporary materials (e.g., perforated weathering steel panels, translucent recycled concrete) and ecological techniques (e.g., patterned paving guiding water flow in rain gardens). It elevates patterns from purely decorative layers to mediators of spatial narrative: simplified mythical beast motifs become walkable inlay patterns on children's activity areas' surfaces; abstracted botanical patterns create three-dimensional light-and-shadow effects on pergola canopies; reconfigured ripple patterns form visual guidance alongside wetland boardwalks(Shu H F & Shen H, 2022). This multidimensional reconstruction not only invigorates spatial interest but also constructs an ecological-cultural narrative field imbued with Jingchu's reverence for nature (such as birds, beasts, and plants) through the combination of symbols and spatial interaction(Hou L & Zhang Z Y, 2022), thereby strengthening the spirit of place and cultural immersion.

Simplification, deformation, and reconstruction form a progressive translation pathway. Grounded in semiotics for decoding and guided by ecological aesthetics' principles of adaptability, organicity, and narrativity for encoding, these methods collectively facilitate the effective transformation of Jingchu motifs from traditional patterns into contemporary ecological spatial elements within parks. This approach preserves regional cultural heritage while endowing public spaces with distinct ecological-cultural identity and aesthetic depth.

5 The Ecological Aesthetic Value of Translated Jingchu Patterns Case

5.1 Cultural value

The Jingchu motifs, as visual symbols of regional history and culture, bear collective memory and cultural DNA. Their creative adaptation within the park's public spaces primarily serves to construct a visual narrative field for regional culture. Drawing upon cultural semiotics and memory theory, this spatial presentation transforms abstract historical connotations into perceptible landscape elements, metamorphosing recreational spaces into "memory fields" that subtly awaken public awareness of cultural roots. This adaptation adheres to semiotic principles, constituting a 'living' practice of regional cultural transmission (Lu X R & Gao H, 2024). By selecting highly recognisable core motifs such as phoenix birds and cloud patterns, and adaptively reconstructing them across surfaces like paving and feature walls, historical symbols are embedded within contemporary living contexts, forming cultural bonds that connect past and present. This spatial narrative bridges the gap between traditional symbols and modern perception, enhancing public recognition of the distinctiveness of Jingchu culture. As a highly accessible shared space, the park's systematic integration of patterns cultivates a potent atmosphere of cultural belonging. Regionally distinctive visual elements form stable cultural cues that continuously influence the collective unconscious, sedimenting and reinforcing regional identity within public life(Lu X R & Gao H, 2024). Thus, pattern translation constitutes a spatial strategy for cultural transmission, whose core value lies in activating cultural genes to awaken collective memory and forge identity cohesion through everyday spatial experiences.

5.2 Ecological value

The translation of Jingchu motifs into park public spaces holds core ecological value through its profound alignment with ecological aesthetics' principles of wholeness, dynamic equilibrium, and symbiotic coexistence. It fosters biodiversity: the arrangement and composition of patterned forms create diverse microhabitats. Paving joints or frameworks mimicking the characteristics of Chu region vines provide pathways for insect habitation and climbing plants. Water body edges treated with abstract ripple patterns, combined with gently sloping gravel, attract amphibians and enhance local habitat carrying capacity.

This translational practice profoundly influences the park's ecological equilibrium mechanisms. The morphological density, orientation, and material permeability (such as permeable concrete and perforated metal panels) of pattern applications directly regulate surface rainwater infiltration and redistribution, patchy sunlight distribution, and near-surface air circulation. Drainage paving inspired by the cloud-and-thunder patterns of Chu lacquerware effectively channels rainwater into sunken green spaces or bio-retention facilities. The light-shading patterns of canopy structures provide growth space for shade-tolerant plants, modulate local temperature and humidity, and reduce irrigation requirements.

The sustainable principles embedded in this translation process constitute a vital value dimension. Prioritising local natural materials, recyclable substances, and low-environmental-impact techniques—such as bamboo, timber, and recycled stone for pattern-bearing elements—echoes Chu traditions while minimising resource consumption and environmental burden. The simplicity of structure and standardised material design facilitates component replacement and recycling, extending the facility's lifecycle.

Thus, the essence of translating Jingchu patterns lies in transforming regional cultural symbols into a "living" spatial vocabulary with ecological service functions. It creatively responds to natural forms, ecological processes, and sustainability principles, participating in the construction of a more resilient and vibrant urban green space system. This provides a practical paradigm for cultural heritage preservation and ecological sustainability(Wang G et al., 2024).

5.3 Aesthetic value

The aesthetic quality of public spaces within parks is enhanced through the translation of Jingchu motifs, achieved by reconfiguring visual symbols and integrating ecological connotations. Drawing upon ecological aesthetics' emphasis on interconnectedness of life and expressive form, combined with semiotic theories of cultural symbol recontextualisation(Wang G et al., 2024), this study analyses the value generation mechanism. The research methodology employs literature analysis and deductive reasoning.

The distinctive rhythmic curves, interplay of solid and void compositions, and natural motifs of Jingchu patterns—such as the phoenix's vitality and scrollwork's organic vitality—undergo simplified deconstruction and translation into paving textures, building facades, or plant silhouettes. This is not mere replication but the extraction of 'meaningful form': the orderly cloud-and-thunder patterns become rhythmic paving in rest areas, while phoenix silhouettes evolve into the openwork forms of pergola frames. This approach preserves the visually striking essence of Chu culture while achieving symbiosis with nature through ecological materials (recycled resources) and organic forms. As visitors traverse the space, the translated visual rhythms (wave-like paving guiding the gaze) and metaphorical symbols (Chu-style scrollwork evolving into railings) trigger cultural associations, fostering an aesthetic experience where 'the mountain is no longer seen as a mountain'.

This translation transcends the visual realm. The tactile quality of ecological materials (the warmth of timber) and the spatial sequence's progression (echoing the fluid essence of Chu art) enable visitors to physically engage with the philosophical concept of "unity between heaven and humanity". Vine projections cast dynamic artistry upon the mottled morning light filtering through the patterned paving, aligning with ecological aesthetics' emphasis on life's processual nature. Aesthetic value manifests across three dimensions: the formal layer confers regional distinctiveness; the emotional layer awakens cultural memory; the conceptual layer guides ecological ethical awareness.

Successful translation follows the 'form-meaning-atmosphere' logic: formal symbols align with contemporary aesthetics; atmosphere relies on ecological elements like plant seasonal phases and light-shadow interplay;

Narrative is ultimately activated through recreational engagement. Future enhancements could deepen multisensory collaborative design, such as integrating soundscapes to reinforce water metaphors, or employing aromatic plants to echo floral motifs, thereby enhancing immersion.

6 Case Study

This paper analyses the area surrounding the Jingchu Culture Theme Pavilion at Wuhan Garden Expo Park as a representative case study. The design intent for this zone aims to translate Jingchu motifs through contemporary landscape language. The paving abstractly extracts the undulating water ripple motifs commonly found in Chu lacquerware, rendered through alternating shades of streamlined stone tiles. This paving covers approximately 30% of the area

(Source: Wuhan Municipal Bureau of Landscape Architecture, 2015 Wuhan Garden Expo Construction Report). This treatment simplifies the intricate details of traditional patterns while retaining the essence of flowing water. The linear direction naturally integrates with the site's micro-topography and rainwater collection channels, demonstrating the design's consideration for ecological harmony and creating a rhythmic visual aesthetic.

Another application is evident in the facade design of pergolas and pavilions. Rather than directly replicating bronze ware's coiled dragon motifs, the design team extracted their linear characteristics of winding and twisting. These were reconfigured using modern metal components to form vine-like support frameworks. The arrangement of these structures cleverly guides the growth paths of climbing plants such as trumpet vines and ivy. Vegetation monitoring data collected three years later revealed that plant coverage in these structured areas reached 92%, surpassing the average of 78% observed in standard metal mesh frameworks. This effectively enhanced localized micro-environmental biodiversity (Source: College of Landscape Architecture, Huazhong Agricultural University, 2019 Ecological Benefit Assessment Report for Designated Areas of the Horticultural Expo Park). While fulfilling shade and recreational functions, this approach achieves symbiosis between patterned motifs and living vegetation, blurring the boundaries between artificial ornamentation and natural growth to reveal the vital dimension of ecological aesthetics.

Translational limitations are also evident. Certain sections employ densely replicated, geometrically simplified phoenix motifs on low wall decorations. These concentrated pattern units clash somewhat with the modern park's open, airy spatial atmosphere, failing to fully consider visitors' holistic visual experience during dynamic movement. This creates a sense of localized symbol overload, weakening organic integration with the environment. Concurrently, the exploration of the patterns' deeper ecological symbolism—such as the Chu culture's reverence for natural beings—and its integration into the spatial atmosphere remain somewhat underdeveloped(Tao J & An Y H, 2023).

This case clearly demonstrates that the successful adaptation of Jingchu patterns within park spaces hinges on transcending superficial replication. It requires extracting their formal essence while adhering to ecological principles, then reconstructing them functionally and dynamically to foster symbiotic interaction with the surrounding elements. Mastery of spatial scale and the deep resonance between the patterns' spiritual essence and environmental themes represent areas requiring greater emphasis in future practice. Successful design lies in enabling traditional patterns to 'grow' within the environment in ways that align with ecological logic and contemporary aesthetics, rather than merely serving as decorative appendages.

7 Conclusion

This study systematically reveals that the ecological aesthetic translation of Jingchu motifs within park public spaces constitutes a creative fusion of regional cultural DNA and contemporary ecological ethics. Its core value lies in activating the contemporary ecological significance of traditional cultural symbols. Theoretical research combined with empirical analysis demonstrates that translation practices adhering to the principles of 'form-spirit refinement, ecological integration, and site symbiosis' not only effectively convey the visual codes and spiritual essence of Jingchu culture but also enhance the quality of park micro-habitats through pattern morphology, spatial layout, and material selection. This strengthens public perception of nature and ecological identity, achieving a value synergy between cultural heritage and ecological function.

Research limitations manifest in three primary areas: firstly, a comprehensive quantitative model for pattern ecological efficacy remains incomplete, with precise data supporting biodiversity enhancement and microclimate regulation requiring further investigation; secondly, long-term mechanisms linking translation forms to public psychological experiences and behavioral patterns lack large-sample tracking studies; thirdly, an adaptive translation strategy system across regional and multi-scale park types remains underdeveloped.

Future research should focus on: First, constructing an interdisciplinary evaluation framework integrating environmental science and design aesthetics, prioritizing the quantification of translated patterns' contributions to specific ecological indicators such as carbon sequestration, oxygen release, and rainwater infiltration, thereby establishing a scientific efficacy database. Second, employing environmental psychology methodologies to conduct long-term tracking observations of public dwell times, interaction frequencies, and emotional responses within diverse translated spaces, deepening understanding of the "culture-ecology-behaviour" interrelationship. Third, develop differentiated, tiered translation design guidelines for diverse spatial types—such as community pocket parks, waterside corridor parks, and country parks—to enhance the strategy's universality and implementability. Fourth, explore synergistic innovation models between Jingchu pattern symbols and modern ecological technologies (e.g., vertical greening, permeable paving), propelling patterns from two-dimensional ornamentation to three-dimensional ecological components.

This paper contends that the ecological translation of Jingchu patterns transcends mere formal replication. Its essence lies in constructing a spatial narrative logic that unites 'local expression, ecological interpretation, and human-centred experience.' Only by deeply rooting in cultural heritage, adhering to ecological principles, and responding to public needs can traditional patterns achieve genuine revitalisation within contemporary public spaces. This approach offers a 'Chinese solution' for the sustainable transmission of regional cultures within a global context.

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