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# Analysis of Rural Plant Landscapes in Yueqing: A Case Study of Yandang Mountain

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## ABSTRACT

To investigate the technique of developing rural plant landscapes against the backdrop of urbanisation, this study uses Yandang Mountain in Yueqing City, Zhejiang Province, as a case study. Through field research and type analysis, we methodically categorised the spatial characteristics of the production-living-ecological space of rural plant landscapes in Yandang Mountain, as well as their current state, from the perspective of integrating ecological, living, and production spaces in the countryside. According to the study, the five principles of wholeness, culture, ecology, pragmatism, and art should be combined with native plant resources to maximise plant configuration and landscape structure. The findings demonstrate that by encouraging industrial integration, maximising living space, and preserving ecological balance, Yandang Mountain can achieve the multiple benefits of plant landscapes in environmental conservation, economic development, and cultural heritage. It has been determined that rural plant landscapes are a key component of rural rehabilitation, and Yandang Mountain's landscape development practices offer a model for similar areas.

## KEYWORDS

Rural Plantscape; Yandang Mountain; Production-Living-Ecological Space; Landscape Creation Strategies; Rural Revitalization.

## 1. INTRODUCTION

Composite spatial systems created by the interaction of natural and artificial elements are referred to as rural landscapes. They include a wide range of elements, including flora, hydrology, transportation, agriculture, and settlements [1]. Yueqing City, situated on the southeast coast of Zhejiang Province, has a topography that slopes from northwest to southeast, primarily consisting of hills and mountains. The Yandang Mountain Range in the northwest, the Bailong Mountain Range in the centre, and the Baishishan Range in the southwest (also known as the Central Yandang Mountains) are the primary landforms in the area. In addition to local culture, customs, and socioeconomic systems, mountainous settlements often incorporate indigenous vegetation into their surrounding natural environment, resulting in distinctive visual patterns that combine mountains and waters. The pastoral and regional features of rural landscapes, which are layered with human elements and built upon a natural foundation, represent particular local cultural qualities and ways of life. They are extremely valuable in terms of history, culture, science, economy, and education [2, 3, 4].

Plant communities are undergoing dramatic changes as urbanisation progresses, posing significant challenges for rural environments. The amount of flora has drastically decreased as a result of the destruction of nearby woods and the conversion of large areas of agricultural land into building sites during rural development. The original natural features of rural areas are disappearing, greening techniques have become increasingly urbanised, and plant groupings have become more

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uniform. Harmonising natural ecosystems with agricultural output, reviving agriculture, and investigating scientific avenues for rural economic development are the three central tenets of the "Sansheng Space" concept—production, living, and ecology [5]. An essential part of the rural landscape system is native plants. The "Sansheng Space" notion should be embodied by a composite plant landscape that integrates the three roles of rural production, living, and ecology. This strategy will support the stability and peaceful expansion of rural social structures while strengthening the foundation for sustained rural economic development, in conjunction with regional plant resources, cultural heritage, and industrial assets.

## 2. RURAL PLANT LANDSCAPE TYPES AND CHARACTERISTICS

Within rural regions, human settlements are carried by rural landscapes, which are comprehensive spatial units. They mainly take the form of natural ecological landscapes, productive landscapes, and settlement landscapes, and their essence is threefold: living, production, and ecology. The social structure, cultural traditions, customs, spiritual beliefs, and aesthetic conceptions of rural places are all deeply reflected in and dependent upon this system [6].

### 2.1. Ecological Plant Landscapes

Natural vegetation, rivers, and mountains are the main features of ecological plant landscapes. They support a variety of biological communities, including dense forests, sparse woodlands with grasslands, riparian plant communities, and wetland vegetation, which depend on their elevation and geographic location [7]. With 1,016 beautiful plant species in 112 families, including many well-known decorative trees and shrubs, Yandang Mountain is home to a wealth of plant resources. Ginkgo biloba, Picea koraiensis, Metasequoia glyptostroboides, Aesculus chinensis, Eucommia ulmoides, and Magnolia obovata are examples of endemic and remnant species found worldwide. The unique botanical landscape of the mountain has been shaped by the extensive use of endemic species such as Yandang maple, Yandang waxy laurel, Yandang Dendrobium officinale, and Yandang maidenhair fern in local greening initiatives [8]. These plants serve as essential pillars for improving the rural ecological environment in addition to having beautiful forms and aesthetic value.

### 2.2. Production-Oriented Plant Landscapes

Prioritising productive functions, production-oriented plant landscapes produce subsistence commodities while supplying resources for agricultural output. They have dual value as adornment and manufacturing, expressing pastoral beauties and showcasing local culture at the same time. These landscapes fall into various categories, including woodlands, medicinal, forage, and food [9]. Mountains, rivers, farmlands, forests, and communities are interwoven across the vast rural terrain. Among these, well-kept fields and thick woodlands are the hallmarks of the rural plant landscape [10]. Yandang Mountain thrives on a diverse range of unique income crops, including flowers, seedlings, tea, fruits, and traditional Chinese medicinal herbs, despite having a limited arable area and low grain yields. Yueqing has developed a comprehensive industrial chain that incorporates deep processing (such as dried Dendrobium stems and beverages), large-scale farming, brand development, and themed tourism, using Yandang Dendrobium officinale as an example. This sector now serves as a model for rural rehabilitation. Some villages, such as Xianglingtou Village, have leveraged tourism services to become administrative villages with comparatively high per capita incomes within the picturesque area, thanks to the growing tourism industry [11].

### 2.3. Lifestyle Plant Landscapes

Lifestyle plant landscapes are essential carriers of the aesthetics of rural courtyard living and are primarily utilised in home green areas, farming vegetation, and roadway greening. There is potential

for improvement in the species selection and colour layering of the plant landscapes along Yandang Mountain's roads, notwithstanding their rustic charm. On the other hand, the walking routes in the Jingming Pit section of the Three-Tier Waterfall scenic zone are bordered by thick bamboo forests. These groves create an aesthetic experience and spatial sequence that evokes the traditional Chinese expression "a winding path leading to a secluded spot."

# 3. PRINCIPLES AND METHODS FOR RURAL PLANT LANDSCAPE DESIGN

## 3.1. Application Principles

### 3.1.1. Holistic Principle

Designing a rural plant landscape should prioritise holistic integration, taking into account the needs of the population, cultural traits, and the natural base. Together with the nearby mountains, waterways, forests, farmlands, lakes, and marshes, Yandang Mountain's settlements make up an organic landscape. To produce layered, regionally unique native landscapes, plant selection and arrangement should blend in with the local natural and cultural patterns. This can be achieved by combining production, living, and ecological landscape models. Integrity is the key to achieving landscape harmony and enhancing the quality of rural living environments. Maintaining the completeness of the landscape pattern and promoting the harmonious coexistence of communities are the foundations for the sustainable development of rural landscapes.

### 3.1.2. Cultural Principle

To honour history and represent local cultural traits, plant landscape design should blend seamlessly with locals' everyday routines and cultural customs. Climate, temperature, hydrology, and human activity all have an Impact on the regional variances found in plant landscapes. By cultivating and appreciating local aesthetic preferences, they integrate with local culture, thereby strengthening locals' sense of identity and sense of belonging. To enhance the creative expression and cultural meanings of the scenery, plant landscape design should emphasise the cultural qualities of plants. Creating poetic places can be aided by taking inspiration from classical poetry and painting techniques. Classical Chinese gardens expertly create spatial atmospheres by utilising the cultural meaning of plants. For example, the "Three Friends of Winter"—plum, bamboo, and pine—are commonly found in memorial gardens and represent noble character. Rare species, including Jingning magnolia, golden thread nanmu, Yandang orchid, and shield-leaf pinellia, as well as well-known and historic trees like the century-old pine known as the "Little Welcoming Guest Pine" at Xianglingtou, all have significant historical and cultural value.

### 3.1.3. Ecological Principle

Designing a plant landscape should follow ecological guidelines, taking into account local conditions and selecting trees that are suitable for a specific location. Prioritising native tree species will help prevent non-native plants from upsetting ecosystems. Maintain species diversity, foster symbiotic relationships, and enhance stress tolerance and aesthetic appeal. Encourage regional ecological balance and the sustained growth of biodiversity by allocating ecological space as efficiently as possible.

### 3.1.4. Practicality Principle

To meet everyday demands, plant landscapes should strike a balance between aesthetic appeal and practical functionality. To improve landscape utility and rural sustainability, choose plants that have ecological, medicinal, or edible uses. Economic crops that can boost rural industrial development, raise villagers' incomes, and promote sustainable growth include flowers, seedlings, tea, fruits, and traditional Chinese herbs.

#### 3.1.5. Artistic Principle

Plant landscapes must have artistic merit, utilising creative treatments such as form, colour, and layout to enhance their aesthetic value and emotional Impact. Utilise strategies such as balance, harmony, and contrast to create visual effects that are both steady and dynamic. Variations in forest borders and canopy lines add a dynamic beauty, while the succession of plant communities establishes a rhythm and cadence. Plants with different shapes, hues, and textures combined generate a rhythm that is intertwined. Temporal landscape sequences can be made by utilising the seasonal traits of plants. One example of a profound synthesis of natural seasonal aesthetics is Guo Xi's painting "The Sublime Beauty of Mountains and Springs," which depicts four seasons of mountain landscapes.

### 3.2. Implementation Approach

Production, living, and ecological space should be considered when planning Yueqing's rural plant landscapes to fully assess the current condition of the native flora and implement innovative design techniques. The "minimum disturbance" approach must be followed by ecological zones, protecting natural vegetation and biological processes while creating networks of environmental corridors and multipurpose green belts beside roadside ditches and field boundaries. To create an agricultural landscape system with "high yield, high efficiency, and high aesthetic appeal," agrarian production zones should strike a balance between ecological and productive functions. To improve living quality and green space ratios, village living areas should prioritise enhancing the human environment through "micro-renovations and refined upgrades." This strategy uses dispersed plots to diversify greening forms while controlling the unchecked growth of construction land.

## 4. PLANT LANDSCAPE DESIGN IN YANDANG MOUNTAIN FROM A "SANSHENG SPACE" PERSPECTIVE

In addition to its cultural heritage monuments, which include ancient temples, tombs, and stone inscriptions, Yan'gang Mountain is renowned for its natural wonders, featuring unusual peaks, strange rocks, caverns, ravines, tumbling waterfalls, serene lakes, winding streams, and picturesque coastline inlets. Its plant landscape should be created with suitable human intervention while honouring the beauty of nature. An ideal plant landscape layout should be designed by considering the ecological features and functional goals of various zones, as well as the principle of selecting the appropriate tree for the right place.

### 4.1. Overall Concept and Style Positioning

The development of the plant landscape should be based on regional features and align with the mountain-water framework, taking into account the valleys, ridges, peaks, caves, waterfalls, and native plants of Yandang Mountain. A landscape architecture that emphasises folk customs, highlights unique local elements, and concentrates the mountainous topography as its visual focal point is the aim. Native Yandang Mountain species comprise the majority of the plant materials, with classic garden plants such as camphor trees, pines, junipers, Japanese cedars, magnolias, red maples, crape myrtles, Japanese maples, and various bamboo species being added. Nature and human civilisation are harmoniously integrated with this method.

### 4.2. Strategies for Creating Plant Landscapes

#### 4.2.1. Unlocking Production Potential and Promoting Industrial Integration

A key component of the rural economy, rural plant landscapes are composed of natural woodlands and agricultural fields that represent the untamed, rustic, and natural aspects of the countryside. Rural development can be revitalised through scientific planning and effective management. Through the

extensive production of economic crops, including flowers, seedlings, tea, fruits, and medicinal herbs, as well as the development of their therapeutic and health advantages and the promotion of forest tourism, Yandang Mountain has sparked diversified economic growth. Utilising plant production qualities for rural tourism enhances farmer-plant interactions, boosts the local economy, and attracts tourists due to its accessibility [12].

### 4.2.2. Optimising Living Spaces to Create Livable Environments

The everyday life of the inhabitants is intimately linked to the plant landscapes. Roadside vegetation, public spaces, and the green spaces surrounding homes should all be designed with scientific principles in mind.1) To improve interaction experiences, residential green areas may include plants with therapeutic, culinary, or fragrant economic value. To enhance seasonal transitions, consider combining these with autumn-foliage plants, such as purple-leaf plum and red maple. 2) Roadside greening should be "tailored to local conditions and scenery," highlighting botanical resources and tourism culture using species like eucalyptus, metasequoias, camphor trees, camphor laurels, and French plane trees. Incorporating ancient trees, such as metasequoias and camphor trees, into scenic regions strengthens the historical and landscape layers, while French plane trees planted along entrance roads convey an urban aesthetic [8]. 3) Native natural landscapes should serve as the foundation for public areas, incorporating cultural features like traditional architecture, pastoral textures, and agricultural heritage.

### 4.2.3. Preserving Ecological Balance and Creating an Aesthetic Environment

To preserve the overall pattern of "mountains, waters, forests, fields, lakes, and grasslands," ecological plant landscapes should prioritise preserving ecosystem integrity [13]. To establish harmonious unity between mountain morphology and vegetation communities, Yandang Mountain's landscape construction must strictly adhere to the topographic response principle, adopting diverse designs that are tailored to terrain variations. To prevent low survival rates and reduced landscape effects caused by the introduction of inappropriate species, plant selection should be adjusted to regional elevation gradients. Combinations of plants and rocks should match in terms of colour, texture, and scale. Using ecological methods to repair soil and replant species with ecological restoration functions, attention should be given to both exposed mountain surfaces and soil contamination simultaneously.

## 5. CONCLUSION

Typically, mountainous settlements feature remarkable natural landscapes with complex structural layers, a diverse array of plant groups, and unique regional characteristics. These plant landscapes provide essential ecological functions, in addition to preserving cultural heritage. Plant landscapes play a multifaceted role in shaping the "Sansheng Space" of rural areas, encompassing production, living, and ecological aspects. They are carriers of production, agents of environmental betterment, and sculptors of living places. To stimulate economic regeneration, Yandang Mountain's plant landscape should utilise local resources and capitalise on tourism opportunities. This method will systematically unlock the full potential of plants in production, life, and ecology. To visually support regional tourism, mechanisms for landscape integration should be strengthened. This will enable plant landscapes to be integrated within the village's cultural context, supporting its economic and social development. The ultimate objective is to create a spatial system where production, living, and ecological functions coexist peacefully while maintaining the integrity of the rural plant landscape pattern.

# REFERENCES


[1] JIN Shiwuba, SUZUKI Makoto, ICHIJO Hiroyuki. Xiangtu Jingguan Sheji Shoufa [Local Landscape Design Techniques][M]. Translated by LI Shuhua, et al. Beijing: China Forestry Publishing House, 2008.

[2] Sun Y H, Chen T, Wang Y. Progress and prospects in research of the traditional rural cultural landscape[J]. Progress in GEOGRAPHY, 2008, 27(6): 90-96.

[3] Wang R, Chen K, Huang Y. Summary of rural cultural landscape design research[J]. Packag. Eng, 2022, 43: 80-94.

[4] SUN Yanfei, TANG Xiaolan. The value and realisation path of rural cultural landscape from the perspective of rural revitalisation [J]. Jiangsu Social Sciences, 2021(04): 193-199.

[5] Wu Y J, Yang Y Z, Yang L, et al. Land spatial development and suitability for city construction based on ecological-living-industrial space: Take Ningbo City as an example[J]. Resour. Sci, 2016, 38(11): 2072-2081.

[6] Liu B, Wei C. Pondering over the Planning and Development of Landscape in Towns and Villages at Present in China[J]. Development of Small Cities & Towns, 2005, 2005(9): 45-47.

[7] Jiawei L, Kaili Z. The investigation and its application of mountain village plant Landscape—a case study of Buyi settlement of Biandan mountain area in Guizhou[J]. Chin. Landsc. Archit., 2018, 34(05): 33-37.

[8] HUANG Guotong, HUANG Binwu. Study on tree species planning of Yandangshan Forest Park[J]. Anhui Agricultural Science Bulletin, 2012, 18(14): 144-145+163.

[9] HE Peng, TANG Xiangang, ZHANG Qi, et al. Application and Analysis of the Plants in the Productive Landscape[J]. Journal of Green Science and Technology, 2014(11): 118-122.

[10] CHEN Sisi. Rural plant landscape construction according to the regional culture[D]. Zhejiang A&F University, 2016.

[11] YUAN Yaoqi. Evaluation and analysis of plant landscape in Yandand Mountain scenic area[D]. Zhejiang Normal University, 2020.

[12] ZHANG Sumei, ZHAO Yao. Promoting effect of rural plant landscape design on rural economic development under the background of rural revitalisation [J]. Bulletin of Botany, 2023, 58(04): 669.

[13] HU Sisi. Construction strategy of rural plant landscape design in Qingnan Village of Hangzhou City from the perspective of 'Production-Ecology-Living' [J]. Southern Agriculture, 2023, 17(05): 32-35.