

LETTER TO THE EDITOR

Plant Selection in the Environmental Art Design of Forest Landscape

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Plant species selection and plant landscaping are important means of forest landscape design. The quality of selection and configuration has a great impact on the whole forest landscape. In this paper, the role of plants in the artistic design of forest landscape environment and the basic principles of plant selection and configuration in the design process are discussed. The physiological characteristics and landscape effects of common forest landscape plants are summarized. Through these studies, the basic application methods and functions of plants in forest landscape environmental art design were expounded, which laid a foundation for creating high-quality forest landscape environment.

forest landscape; Landscape design; Plant configuration; select

1 INTRODUCTION

With the rapid development of national economy and the continuous intensification of urbanization, environmental art has also developed rapidly. The environmental art is the green art and the science, is creates the harmony and the lasting art and the science. Urban planning, urban design, architectural design, interior design, architectural sketches, etc. all belong to the category of environmental art (Yan et al. 2018). In the final analysis, environmental art is to create a green, environmentally friendly and ecological environment, and plants just meet such a purpose of environmental art design. In environmental art design, especially forest landscape environmental art design plays a decisive role (Junior et al. 2019, Shen et al. 2017).

Sheng Li, Zhonghua Peng, Zongsheng Huang, Jun Qin published an article on Issue 107 of Ekoloji in 2019 entitled "Plants Spatial Planning Method of Urban Ecological Landscape Environment". As mentioned in this article (Li et al. 2019), when planning landscape plants in an ecological garden environment, planning tends to focus on the plants themselves, neglecting the macroscopic planning and design of the landscape plant space, resulting in fragmentation of the spatial sense, and the actual environment of the ecological garden environment landscape was poor. Therefore, this paper proposed a new method of plant space planning for ecological landscape environment. Based on the detailed study of plant spatial planning characteristics of ecological landscape environment, plant spatial layout was planned according to site conditions, functional planning, spatial sequence and theme land parcel. According to spatial scale and proportion, spatial physical scale and spatial perception scale were planned. The macro space planning adopted perspective method, according to the principle of plant selection, plant configuration and landscape beautification were completed in the form of points, lines and planes, and the effect of plant space planning in ecological landscape environment was comprehensively

evaluated by combining analytic hierarchy process and weighted average method. The experiment showed that this method can scientifically and reasonably plan the ecological landscape plants and had higher planning performance.

Therefore, on the basis of this reference, this paper makes further research and proposes a method of plant selection in forest landscape environmental art design.

2 The important role of plants in the design of forest landscape environment art

(1) The role of beautifying the environment. Since ancient times, people pay attention to the “unity of man and nature” in environmental design. As an important part of the natural environment, we can use the interaction between plants and the environment to achieve the highest realm of this person and nature, and create a “Harmonious Beauty.” (Wang ZL et al. 2016). The use of plants to beautify the environment plays an important role in the artistic design of forest landscape environment. Through the plant disposition, the environment design achieves the scientific nature and the artistic high unification. The formal beauty of different combinations of individual plants and groups of plants enables people to have artistic conception when they appreciate them. Different species of plants match each other, skillfully use plant morphology, color, lines and texture for composition design, and combined with the unique growth characteristics of plants and cyclical changes, can make the environment lively and flexible, in order to achieve beautification of the forest landscape environment this important role in environmental art design.

(2) Ecosystem. Plants have unique ecological characteristics and important ecological functions, which play an important role in improving the ecological environment. The ecological functions of plants mainly include: carbon and oxygen balance, transpiration and heat absorption, dirt absorption and dust retention, bacteria reduction and noise reduction, water conservation, soil activation and nutrient circulation, biodiversity maintenance, disaster prevention and reduction, etc.

Plants absorb carbon dioxide and release oxygen through photosynthesis, which can effectively improve the balance of carbon and oxygen in the environment and improve local air quality. Through the transpiration of leaves, plants absorb a large amount of radiant heat in the environment, which can effectively alleviate the urban heat island effect and play an ecological role in cooling and humidifying. Plants can also absorb airborne pollutants through their own pores and lenticels to purify the air. With the increasingly serious air pollution and noise pollution, more and more attention has been paid to the pollution absorption, dust retention, bacteria reduction and noise reduction of plants. Green space composed of plants in the environment is an important place to maintain biodiversity (Xie and Yu 2017).

(3) Having positive effect to person physiology psychology. Plants not only satisfy people’s pursuit of beauty, but also play a positive role in the most basic physiological and psychological aspects. Relieving eye strain, relaxing mood and reducing stress are the most important effects of plants on people. It has been found that gazing at green plants can significantly reduce and reduce visual fatigue and blinking, thereby effectively alleviating eye fatigue and preventing eye dryness. By observing the vibrant green plants, the body and mind can be fully relaxed and adjusted.

3 Several aspects of plant landscape design in forest landscape design

(1) Ecological design level. The basic principle of ecological design is to control the design through ecological theory, and influence the ecosystem in turn with the help of related design, and organically combine the theoretical research and design practice, so as to realize the ecological function of forest landscape. Ecological design is a design with human disturbance, but it is not equivalent to a single artificial ecosystem, but belongs to a composite ecosystem. Ecological design can make the forest landscape lasting and orderly. As temperature, water,

light, soil, air and other environmental factors have a significant impact on the growth and development of plants, the design should be adapted to local conditions and suitable for trees, so as to basically unify the ecological conditions of the surrounding environment and the ecological habits of plants and give full play to the ecological benefits (Yang et al. 2018).

(2) Cultural design level. With the continuous progress of society, people pay more attention to spiritual needs while pursuing material needs. Therefore, when designing the forest art landscape, we should pay attention to follow certain cultural connotation and cultural landscape to create a high-quality cultural atmosphere. Choose different tree species, create different landscape effects, let people feel different meanings, from the beauty of ornamental plants to the cultural beauty and artistic beauty of plants.

(3) Functional design level. When carrying out forest plant landscaping, it is first necessary to determine the landscape function of the design area, and to determine the function of the plant according to the nature of the green land or the type of green space. Green trees of different natures or types choose different tree species to reflect different forest functions.

(4) Three-dimensional design level. As early as the mid-20th century, in terms of the artistic design of forest ecological landscape, people changed the traditional single-axis design and integrated the three-dimensional design concept into the landscape design. Nowadays, with the rapid development of cities and the shortage of green land, as an effective form of expanding green space, the application of three-dimensional plant landscaping will be more and more extensive.

4 Common plant demand types in forest environment landscape art design

(1) Macrophanerophytes

Macrophanerophytes refers to the tall trees, the root from the independent trunk, trunk and crown are clearly distinguished. Joe does not have an upright trunk, and usually up to six meters to tens of meters tall woody plants called trees. Macrophanerophytes tend to be tall, with distinct tall trunk. Macrophanerophytes correspond to low shrubs, and the tall trees usually seen are macrophanerophytes, such as tamarind, kapok, pine, magnolia, and eucalyptus. Macrophanerophytes are divided into deciduous macrophanerophytes and evergreen macrophanerophytes according to whether they fall in the winter or dry season. Another example is kapok, pine, magnolia, white birch, etc. (Tang et al. 2017).

Macrophanerophytes are widely distributed, and they can be found in almost all known places, including the gobi desert and other harsh environments.

Macrophanerophytes is the backbone tree species in the garden, which can play a leading role in both function and artistic treatment, such as defining the space, providing shade, preventing glare and regulating the climate. In terms of color, line, texture and tree shape, most of the macrophanerophytes can form rich seasonal changes with the growth and fall of leaves, and even after falling leaves in winter, they can show the beauty of the lines of branches.

(2) Shrubs

Shrubs are perennial trees that have no obvious trunk and are clumped rather short. Some conifers are shrubs, such as juniper. Common irrigation does not have rose, cuckoo, peony, berberis, boxwood, sandy ground cypress, shop ground cypress, forsythia, winter jasmine, Chinese rose, jing, jasmine, willow, etc.

The shrubs are hi-light, they like a cool and dry climate, cold-tolerant, drought-tolerant, and resistant to inferiority. It has strong adaptability, fast growth and simple cultivation and management.

In the artistic design of forest landscape environment, shrub is one of the main building materials of modern landscape. Most shrub resources have the advantages of strong resistance, wide adaptability, simple reproduction,

extensive management and so on. They play the role of enriching the spatial hierarchy, connecting and transferring the hard landscape and so on. They can not only improve the ecological environment that human beings live in, but also create beautiful environment and space.

(3) Semi-shrubs

Semi-shrubs are one of the woody plants with no obvious trunk. The plants are generally short and the branches are clustered on the ground. The difference with shrubs is that only the lower part is perennial; the upper part is annual, and it is withered and died in winter. Semi-shrubs contain many taxa, among which the most common ones are Compositae, Cymbidium, Artemisia, and Aralia, which are widely distributed and common in many parts of the world, among which the herbaceous species occupy many varieties. Most of them also have ornamental cultivation value and are an important part of the ground vegetation.

5 Principles of plant selection and configuration in environmental art design

(1) People oriented. Any environmental art design is designed for people, in order to meet the use of human needs and the needs of beauty. So the plant chooses configuration to want to follow above all the principle that is with the person this, the design should have practical function not only, want to satisfy a person to wait for a respect in the vision, smell, hearing at the same time requirement. When selecting and configuring plants, it is necessary to be clear about why the environment is served by people and what functions it should have, so as to carry out targeted design.

(2) Ecological. When selecting and disposing plants, ecological laws must be followed to maintain the ecological balance of the environment by utilizing the circulation and regeneration functions of plant community ecosystem. According to the local conditions, the ecological habits of plants and the ecological conditions of the environment are basically unified. A stable artificial ecological plant community can be constructed by reasonable planting density and matching. Maintain the stability of the plant community, consider the biological characteristics of plants, and deal with the relationship between species. Attach importance to the improvement of the ecological system and form a circulation channel of material and energy in the form of space.

(3) Artistry. The basic elements of plant landscape selection include color, size, shape, line, texture and scale. When selecting, we must follow the principle of art and fully consider these basic elements so that the environment can achieve space beauty and artistic beauty. First of all, it is necessary to meet the requirements of environmental design, layout coordination, reasonable configuration, and different steps. Secondly, the growth and seasonality of plants should be taken into account to ensure that the environment of the four seasons has scenery to appreciate. The plants should be regularly matched again to give full play to the functions and ornamental characteristics of each plant. The plants such as foliage, flower and fruit should be rationally arranged to create a harmonious sense of rhythm. At the same time, we must pay attention to the principles of plane composition, color composition and facade composition.

(4) Economy. The principle of economy must be paid attention to when planting. We must make full use of native tree species when designing, so that energy saving can save costs, local characteristics can be highlighted, and ecological principles are met. At the same time, we must pay attention to the planting of economic tree species, make the ornamental and production closely combined, and rationally use the original plants of the environment for design.

6 Conclusion

As an important part of forest environment, plant selection and configuration are complementary to environment design. With its unique texture and artistic beauty, plants become an indispensable basic element in the artistic design of forest ecological landscape environment. In the environmental design, according to the

requirements of different environmental characteristics, fully consider the needs of people, biological and ecological characteristics of plants, and follow the aesthetic requirements, scientific selection and collocation of plants, so as to design a harmonious, humanistic and artistic forest ecological landscape art environment.

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