Research on edible landscape design based on the concept of landscape sense ecology

Meihui Yu
College of Art and Design, Qingdao University of Technology, Qingdao 264033, Shandong, China

Abstract: This paper introduces the concept of landscape sense ecology into edible landscape design, shows the significance of landscape sense ecology concept to edible landscape, puts forward the design principle of edible landscape from the perspective of landscape sense ecology concept, and puts forward the edible landscape design strategy from three aspects of planting design, perception design and better design, and further integrates landscape sense ecology concept with edible landscape design. To provide reference for the design of edible landscape.

Key words: landscape ecology, edible landscape, landscape design

1. Introduction

In recent years, edible landscape has been rapidly developed by virtue of its dual functions of viewing and eating, and its characteristics of low cost and easy operation make edible landscape not only meet the needs of small-scale space, but also expand its application scope to a larger scale space. The application of the ecological concept of landscape sense to edible landscape can not only improve the ecological benefits of landscape, but also improve the health level of residents, which is crucial to the construction of a harmonious society and a better home.

2. Analysis of related concepts

2.1 Overview of the concept of Jingsense ecology

The concept of landscape ecology was proposed by Zhao Jingzhu and other scholars in 2015. Landscape ecology refers to the science of land use planning, construction and management based on the basic principles of ecology, with the goal of sustainable development, from the aspects of natural elements, physical perception, psychological response, social economy, process and risk. The concept of landscape ecology focuses on human perception based on the big data foundation of the Internet of Things and the Internet, and the application of thinking towards the good. The practice of landscape sense is closely related to people's own perception. Designers integrate their vision into the design of edible landscape through appropriate forms of expression, so that people can understand its vision through the construction of landscape, thus generating a series of physical and psychological perception, and restoring its negative health state.

2.2 Overview of edible landscape

The term "edible landscape" was first proposed by designer RobertKourik. Edible landscape refers to the reasonable collocation of edible plants and their application in landscape design, so that the plant elements in the landscape not only have ecological value, but also have design beauty. The design of edible landscape is not limited to a specific form. The environmental tolerance of edible plants, the diversity of plant forms and the richness of colors enable them to create a variety of landscapes from large parks to small plants.

3. The design significance of edible landscape based on the ecological concept of landscape sense

At present, there are still many imperfections in the design of edible landscape. For example, the types and forms of plant planting are relatively monotonous, which makes some edible landscape only edible but not ornamental. Irrational planning leads to the phenomenon of mutual inhibition of growth among plants, which is not conducive to the sustainable and healthy development of edible landscape.

Through the analysis of human physical and psychological perception, the concept of landscape ecology is more suitable to serve the design of edible landscape. The edible landscape design based on the concept of landscape sense ecology can not only be applied to private landscape Spaces such as private vegetable gardens and roof gardens, but also to public places such as parks and community green Spaces. The research of edible landscape design under the concept of landscape sense ecology has broadened the theoretical research ideas and space of edible landscape design to a certain extent, and provided a theoretical basis for the practice of edible landscape design in the new era.

4. Principles of edible landscape design based on the concept of ecological landscape sense

4.1 Systematic Principle

The construction of edible landscape should systematically and integrally integrate all aspects in the construction of landscape sense to form a complete ecological service system. Through the different characteristics of different plants and the reasonable combination in the landscape, the systematic integration of the site can promote people's physical exercise, mental stress relief and other activities to promote people's health. In addition, through the use of Internet big data, field research and other methods to obtain dynamic update, multiple data, to provide scientific and effective data support for the study of edible landscape; In the process of operation and development, it is constantly improved, not a single way of adjustment and a single stage of optimization, but a systematic design and practice in the process of building a better update system.

4.2 The principle of gradualism

In order to ensure the long-term operation of the design of edible landscape, the preliminary planning and the organization of activities in the site should be taken into account in the early design. The preliminary planning and design should fully understand the composition characteristics of the surrounding population, improve the problems reflected by people, and then carry out large-scale promotion. In the later stage, the edible landscape should gradually assume more functions of urban green space, such as recreational activities, popular science education, exercise and health.

4.3 Ecological principle

The design of edible landscape should respect the actual conditions of the site and the laws of the ecosystem. In the arrangement of plants, local plants suitable for the local climate environment should be selected, and the ecological relationship between plants should be considered at the same time, and the function of plants regulating microclimate should be brought into play to avoid the inhibition between plants. Scientific and environmentally friendly design of facilities in the site, such as the use of some recycled items as components of the site, the use of permeable paving, scientific and reasonable drainage of rainwater, through plant wetlands to filter, purify and store rainwater, to play a role in watering plants in the site.

4.4 Principle of interactivity

Interactivity refers to putting the human experience at the heart of the design. People interact with the site and participate in the landscape through viewing and touching the plants in the site. In addition, it also allows people to participate in the design and maintenance of edible landscape. Before the design of edible landscape, the designer should fully investigate the people around the site, listen to the users' opinions, and increase the interaction through the layout of the site space and the setting of landscape activities.

5. Edible landscape design ideas based on the ecological concept of landscape sense

5.1 Planting design

As the core component of edible landscape, various crops and forest fruit varieties suitable for local growth should be selected in the selection of plants, and diversified landscape characteristics of edible landscape should be displayed.

5.2. Plane layout

The layout of the plane should break the square shape of the traditional vegetable plot, and adopt rich design languages such as round, linear and irregular curves. Different forms of plane composition can increase the interest of the tour and form a visual focus.

5.3. Space creation

A variety of rich space construction can make the edible landscape three-dimensional viewing by people, enhance people's pleasure of sightseeing. Such as various forms of flower shelves, planting boxes, vertical green landscape walls and so on. Various forms of three-dimensional greening can not only enrich the landscape level, but also better play the ecological benefits of plants. In the process of space design, it is necessary to consider the spatial changes of people entering different sites, so that people can visit the edible landscape like visiting ordinary parks.

5.4. Plant selection and collocation

In the selection of plants in the edible landscape, plants with edible value and strong ornamental value should be selected. According to the types of plants, edible plants can be divided into four kinds: food crops, vegetables, fruits, flowers and herbs. As an indispensable part of the traditional Chinese diet, food crops are suitable for large-scale cultivation and show a bold and unrestrained pastoral style. Vegetables grow more short, and can be combined with fruit plants to form plant clusters. In order to keep the plants in the site in all seasons to maintain a good ornamental effect, should choose the season of edible plants mixed planting. Such as summer planting tomatoes, eggplants, peppers and other fast solanaceous vegetables mainly. In winter, some hardy vegetables such as cabbage, cabbage and so on can enhance the winter landscape.

6. Design for perception

According to the concept of landscape ecology, it is necessary to consider people's physiological and psychological experience and adjust people's body and mind when designing edible landscape.

6.1 Visual landscape effect

Vision has a direct impact on people's spirit and emotions. Through the plant color matching of edible landscape, it can provide people with good visual effects and enhance the visual comfort. Related studies have found that the color of plants can have a certain auxiliary effect on some diseases, such as red plants can reduce the impact of muscle aches and loss of appetite on people; Yellow can stimulate people who are depressed and nervous; Green plants can reduce nervous tension and relieve people's stress.

6.2 Landscape effect of hearing

The construction of auditory landscape can be mainly divided into three aspects: natural sound landscape construction, environmental noise control and artificial sound. When designing the natural auditory landscape, we should make full use of the local ecological resources to create the soundscape. For example, planting plants can not only guide birds and insects to sing, but also create the sound of wind blowing leaves and rain hitting plantains. For the noise of various motor vehicles, sound insulation walls and plant sound insulation can be set up at the edge of the site to isolate noise interference as far as possible. The venue plays soothing music as the background music to adjust the mood of people who stroll and relax.

6.3 The landscape effect of smell

When designing for the olfactory dimension, emphasis should be placed on making good use of natural odors from plants, soil, water, etc. Plant allocation should be reasonable to provide a comfortable and healthy environment for pedestrians; At the same time, we should pay attention to the odor treatment of the waste and water bodies discarded by visitors.

6.4 Landscape effect of taste

A major feature of edible landscape is the edible function of landscape. Physical perception formed by different foods and psychological perception caused by eating different foods together form the sense of taste landscape. For the edibility of landscape, it can provide the food and drinking water supply in the site; In addition, you can taste the edible plants grown on the site, especially the plants you participate in production, which can bring unlimited satisfaction to people.

6.5 Tactile landscape effect

Whether it's a sharp coniferous plant, or a flat broad-leaved plant; From delicate petals to rough trunks; Whether it is the touch of nature or the texture of different technology products will bring us different tactile sensations.

6.6 Landscape effect of psychological cognition

In terms of psychological cognition, the edible landscape design under the concept of landscape perception ecology needs the support of psychological data. For example, spatial communication facilities of different scales can be configured for different types of communication activities. Local culture can be preserved by planting native tree species and displaying local cultural elements to enhance people's sense of belonging to local culture. To help people make moral behavior and cultivate good norms through various designs in the site.

7. Design for the good

When people participate in the process of experiencing the edible landscape, the user's perception data information is recorded. In the long run, designers can better understand the user's experience and needs according to the recorded feedback, carry out dynamic design research according to the characteristics of the population, and constantly improve the design according to the needs of users. Therefore, specific and feasible improvement models can be designed according to the characteristics of the project to guide the optimization of the construction process of edible landscape, and build a dynamic development of edible landscape construction system.

8. Conclusion and prospect

Under the background of increasing urbanization, the emergence of edible land reflects people's longing for nature and pastoral life. Although the development process of landscape ecology is relatively short, just as the process of landscape ecology is a process of improvement, the theoretical principles and practical methods of landscape ecology will be mature. There is no doubt that the edible landscape under the concept of landscape ecology has a positive impact on people's physical and mental health, and will promote the development of edible landscape.

References

[1] Yuxuan Tao,Jingxian Zhang,Zhiyuan Liang. Research on edible landscape Design based on module concept [J]. Design, 2019,33(09):56-59.

[2] Chang Liu,Lina Tang. Application of landscape ecology in urban ecosystem services: A case study of urban park landscape design [J]. Acta Ecologica Sinica,20,40(22):8141-8146.

[3] Xuhui Ren,Qinglin Liu. Function and development of edible landscape [J]. Agricultural Science and Information (Modern Landscape Architecture), 2015 (10) : 737-746.

[4] Yihan Xu,Weijia Li,Jing Wen. Landscape Application research of edible landscape at Beijing Expo 2019 [J]. Forestry and Environmental Science, 2019,36(03):115-120.

[5] Su Tang.Research on the application of edible landscape experience elements in aging landscape design [D]. Shijiazhuang Railway University,2022.

[6] Jiang Liu,Xinwei Tang. Thinking on restorative landscape design based on the ecological concept of landscape sense [J]. Journal of Landscape Architectu re,2021,28(03):107-112.

[7] Huaning Yu. Research on Landscape construction under the South Approach Bridge of Nanjing Yangtze River Bridge under the concept of scene-sense ecology [D]. Hebei University of Civil Engineering and Architecture,2022.