Study on the Ecological Environment Planning of Plant Garden Industry in Zhenjiang New District

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Abstract. At present, the social ecological environment is fragile, and natural forestry environmental protection and artificial forestry environmental cultivation have become particularly important. This paper analyzes the development status of the ecological environment of the botanical garden industry in Zhenjiang New District, and proposes methods and recommendations for the ecological environment and forestry planning of the botanical garden. The purpose is to provide a basis for society to promote forestry ecological planning and construction and optimize the reuse of natural forestry ecological resources.

1. Introduction
Planning and building a green development system for forestry ecology is an inevitable requirement for the construction of a socialist ecological civilization and a modern economic system. As an important natural resource in China, forestry ecology has important functional values in maintaining ecological balance, preventing soil and water loss, and improving production and living environment.

2. Development Status of Ecological Environment of Plant Garden Industry in Zhenjiang New District
The Zhenjiang New District Botanical Garden is located on Yinshan South Road, which is an important part of the planning and construction of the core ecological area of the new district. The botanical garden can enjoy rich forestry species, lush rare plants, lawns, and aquatic plants. After conducting a field survey of the botanical garden, I think there are the following problems in planning and construction:

2.1. The planned volume of the forestry ecological environment is small and the model is simple.
Plant types are different in ornamental botanical gardens, but they are still too simple. The area of the entire park is relatively small, the green lung function of the urban plate is insufficient, and the future expectations of planning and construction and reuse are ambiguous, which cannot meet the full display of the naturalness and sense of scale of the forestry ecological environment.

2.2. The contradiction of land use is more prominent, and the space of forestry ecology needs to be optimized.
The Zhenjiang New District Botanical Garden has focused on the development of ornamental plants, which has caused a series of problems such as insufficient natural forest land area and no space for...
development, too limited natural ecology and environmental planning, and limited forest ecological development space. These issues need to be improved and optimized in future urban planning.

2.3. Plant species do not form a cluster advantage. Plants are a key element in the development of forestry ecology. However, due to the strong individual awareness of planting in the botanical garden, the lack of systematic planning guidance and scientific construction has led to scattered planting, weak ecological benefits, and lack of orderly organization and guidance. In addition, some plants are basically under extensive management, which prevents the formation of species cluster advantages.

3. Planning Conditions for Ecological Environment of Plant Garden Industry in Zhenjiang New District
Zhenjiang is located with the center of the north wing of the Yangtze River Delta and is the only junction between the Yangtze River and the Beijing-Hangzhou Grand Canal. The region is rich in water resources and suitable for climate (see Figure 1). The botanical garden is adjacent to Beihu Park and Nanhui Park in Zhenjiang New District. It has favorable ecological and geographical conditions, and has a unique forestry ecological environment foundation.
Table 1. Overview of the basic conditions of Zhenjiang

| Division of districts | The total area (Square kilometers) | Climatic conditions | Water resources | Biological resources | Plant resources |
|-----------------------|------------------------------------|---------------------|-----------------|----------------------|-----------------|
| Jingkou District      | 118                                | Subtropical monsoon climate | The water area of the whole area is 786.5 hectares; the Yangtze River and the canal flow through the waters, of which the water surface of the Yangtze River is 2000.6 hectares. | 13 orders and 25 families of fish, white-fin dolphins, Chinese sturgeon, etc. are listed as national first-class protected animals; 32 families of birds, 122 species; 21 families of other wild animals | The natural vegetation is mainly deciduous and broad-leaved, with more than 80 families and 500 species of various tree species; more than 700 medicinal plants |
| Runzhou District      | 611                                | Northern subtropical monsoon climate | Runzhou District is located at the junction of the Yangtze River and the Canal | The breeding water surface is mainly based on the technology of mixed breeding of silver carp and crab ecological breeding. | Soil types are paddy soil, fluvo-aquic soil, yellow loam soil and limestone soil |
| Zhenjiang New District| 218                                | Subtropical monsoon climate | There is the Yangtze River. And 4 major rivers, such as Baxi River, Dagang River, Dongfeng River, and Yuejin River | Rich species diversity, it is an ecological resource with global importance | The vegetation here is in good condition, the forest is rich, and the forest coverage is 27.4% |
| Zhenjiang High-tech Zone | 1047                                | Marine climate | It faces the Yangtze River to the north, and is located at the intersection of the Yangtze River and the Beijing-Hangzhou Grand Canal. | There are fish and birds in the territory | The forestry area is 400,000 mu, which is the key forestry production city in Jiangsu Province; the tea, grape and flower industries are world famous |
| Danyang City          | 1385                               | Subtropical monsoon climate | Abundant water resources, with an area of 300,000 mu, 67 large and small reservoirs, 44 large and small rivers, with a total length of more than 310 kilometers | Fish, shrimp, hair crab, pearl and other aquaculture have formed a certain scale | The forestry area is 400,000 mu, which is the key forestry production city in Jiangsu Province; the tea, grape and flower industries are world famous |

(Source of the chart: self-drawn by the author)

4. Planning Strategy of Ecological Environment of Plant Garden Industry in Zhenjiang New District

Forestry ecological environment planning should be based on the local natural environment carrying capacity as the premise, and from the relationship with the natural ecological environment, the pursuit
of harmony and balance between man and nature. Based on the above, I proposed the planning strategy for the ecological environment of the plant garden industry in Zhenjiang New District:

4.1. Respect nature and build a green ecological development system in the park.

The goal of the forestry ecological environment is to strengthen the advantages of natural resources, save natural resources on the base of protection, respect the original ecological pattern and natural functions, and prevent the damage and impact of natural resources caused by excessive design from the root cause. A good ecological environment is the basis of forestry environmental planning and the prerequisite for sustainable development of the botanical garden. The new area botanical garden should follow the principle of ecological priority in the planning, maintain the stability of the ecosystem, and determine the appropriate regional development plan. The overall spatial pattern of the ecological environment should be considered in the planning, macro layout and overall planning should be carried out, the protection of the original natural relic forest areas should be strengthened, and modern technical means should be used to restore the damaged forestry environment. Finally, the overall green ecological development system of the botanical garden is established.

At the same time, for the overall forestry environment planning of the park and the allocation of plant communities, the natural dynamics of the forest area ecosystems should be given full attention. Especially in the forest area's natural maintenance ability, natural restoration ability, natural succession and regeneration ability these aspects should be given more attention. Therefore, in the forestry environment planning, it is necessary to make full use of natural ecological conditions to achieve mutual adaptation with artificial planting, and to achieve the revival, regeneration and optimization of the entire ecosystem. It can save construction resources and form an ecological environment with maximum adaptability.

4.2. Reasonable layout to optimize the reuse of natural ecological space in forest areas.

The development space of forestry ecological environment should be laid out in advance and scientifically planned, and it should be combined with the land for urban planning and construction. When carrying out forestry ecological planning in the botanical garden of Zhenjiang New District, it is necessary to rationally allocate land resources and make overall plans based on species and land conditions. At the same time, it is necessary to consider the continuity of forestry ecology in combination with the urban space system, to embed the design concept of the city and the countryside, and to integrate the forestry ecology of the park into the urban ecological space system, so as to avoid the ecological and environmental problems caused by unreasonable land use.

4.3. Adapt to local conditions, highlight the revival of native forestry species.

Native plants are an objective manifestation of the local humanities, and have ecological, spiritual, cultural, and material characteristics. This highly recognizable characteristic is also a manifestation of the local forestry characteristic heterogeneity. Before planning the forestry ecological environment, it is necessary to have enough understanding and investigation of local objective species, and to fully consider the characteristics of local forest development. Under the concept of ecological development, indigenous forestry species are the most suitable natural landscape elements to adapt to the local ecological environment, which can evoke people's emotional awareness, echo and resonance of locality. Therefore, forestry ecological planning must emphasize the display of local spirit, and must choose suitable tree species for planting and use local indigenous technologies for resurrection in order to achieve compatibility with the local ecological environment. In addition to being able to reflect local characteristics, it is also necessary to combine scientific methods and innovative technologies to meet the needs of modern aesthetics. For example, different species are reasonably linked to form a typical resurrection model, which can not only improve the forestry environment's self-protection ability, but also enhance the ornamental beauty of plants, and finally achieve aesthetic upgrade.
5. Concluding remarks
The construction of forestry ecological environment is the main body of the current social ecological civilization construction. With the increasing attention paid by all sectors of society to ecological construction, higher requirements have been placed on the planning of forestry ecological environment. Aiming at the short-sightedness problems in forestry ecological environment planning, on the one hand, we must carry out research on forestry ecological environment planning and design according to local conditions. On the other hand, we need to sort out, analyze, and summarize various forestry planning problems, and explore targeted and objective solutions. These studies and discussions will eventually promote the further improvement and optimization of the quality of China's forestry ecological environment development.

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